THE MANKIND QUARTERLY

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Apollo the Wolf-god

Daniel E. Gershenson

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Indigenous and Independent Origin of the B*-Mutation in Ancient India: Is it a Myth or Reality?

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The sickle cell anemia is one of the major genetic and public health problems not only in India but also throughout the world. The origin and dispersal of B*-mutation is, still a controversial issue in the world including in India. Different views have been expressed by several investigators, varying from a single independent mutation to multiple mutations at several occasions, from a single geographical location to multicentric origin(s), from diffusion to large scale migrations and altogether independent B*-mutation in the world. Several B*-mutations namely, Senegal, Benin, Bantu, Cameroon and Arab-Indian have been identified. The later B*-mutation has been encountered in East Saudi Arabian peninsula and India. Recent studies in India question the independent Asian origin of B*-mutation and also of the unicentric origin of the tribal populations in India. Evidence from Indus Valley Civilization remains indicates the existence of sickle cell anemia even before the Muslim expansions took place in India. This further testifies the movements and migrations of the people from different parts of the world including from Africa to India during ancient times. The probability of migration of B*-mutation from Africa to India has not been ruled out because of several African B*-haplotypes prevalent in India. Further, the possible explanation for the spread of B*-mutation in India has been discussed.

Key Words: B*-mutation, independent origin, migrations, dispersal, diffusion, Arab-Indian haplotype, Tribals, Nontribals, India.

Introduction

Among the noncommunicable diseases, genetic disorders constitute a major bulk and share of the human sufferings in India. Sickle cell anemia is one of the genetic disorders which has a very widespread geographical distribution and is

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characterised by a severe anemia, recurrent vaso-occlusive episodes, and increased susceptibility to infection (Balgir, 1995). The frequency of this disorder in India is quite high, ranging from completely absence in some populations to about 45% in others (Balgir, 1996a). The average sickle cell gene frequency of 4.3% has been recorded in India (Balgir, 1996b).

The wet cultivation, climate and geographical factors have been suggested as determinants for the understanding of the observed B*-mutation variations in the world. The frequency of B*-gene is quite high in semi-arid steppes (0.071), followed by tropical regions (0.039), and the lowest monsoon with dry cold regions (0.003) in India (Bhasin et al., 1994).

There has been much debate about the origin of sickle cell gene in India, whether it is indigenous in origin or it had migrated from Africa to India in the prehistoric times. The question whether the extensive geographical occurrence of sickle cell disease in the world can be explained by a single origin of the mutation with subsequent large scale migrations or whether it relates to multicentric origins. This has been examined by an analysis of restriction site polymorphisms (RFLPs) linked to the B*-globin gene.

The aim of this article is to highlight the above issues in depth with special reference to India.

Africa

The B*-mutation is one of the commonest single gene mutations in man and has a very widespread geographical distribution including the most of Africa, the Middle East, India, parts of the Mediterranean region, and the Americas (Bodmer and Cavalli- Sforza, 1976). There has been considerable anthropological, genetic, and clinical interests, in whether the mutation had (a) single or multiple origin(s) and the geographical site(s) of origin (Nagel, 1984).

Livingstone (1989) has argued for a Middle Eastern origin of the sickle cell hemoglobin and the possibility that its worldwide distribution is due mostly to the diffusion of a single mutation, which is postulated as having been diffused throughout the Africa and the Middle East by Arab or Muslim expansions.

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Evidence from the HpaI RFLP 31 to the Beta-globin gene (Kan and Dozy, 1978, 1980; Mears et al., 1981a; 1981b) and, subsequently, from Beta-globin haplotypes has suggested a multicentric origin of the B*-mutation in Africa. Pagnier et al. (1984) strongly supported the hypothesis that the B*-mutation has arisen independently on several occasions in Africa. Three separate mutations namely, the Senegal, Benin, and Bantu of B*-gene have occurred in Africa and are possibly due to recombinant or gene conversion (Pagnier et al., 1984).

The knowledge of geographical distribution of different B*-haplotypes has enabled the analysis of possible population migrations in Africa. Nagel (1984) has analyzed the B*-haplotype data of Jamaican, US American, and African blacks in relationship to the movements of the slaves transported to the New World and concluded that estimates of the composition of slaves by origin, based either on historical data or on B*-haplotypes, arrived at similar figures, that is, 70% Central West Africa(Eastern Nigeria), 17% Bantu Africa, and 13% Atlantic West Africa. Thus, in the African continent, B*-mutation migrated with the movements of people either as slaves, trade routes or Muslim expansions.

India

The B*-gene was unknown to the present day Indian people before the independent discovery in 1952. The first cases of the sickle cell hemoglobin in India were reported by Dunlop and Mazumder (1952) who detected five cases of sickle cell trait and three presumptive cases of sickle cell anemia among the tea garden labourers of Upper Assam, India, originating from the tribal populations of Bihar and Orissa states. In the same year, the presence of sickle cell trait among the aboriginal (Pre-Dravidian) tribe (Toda) of the Nilgiri Hills in Southern India was reported by Lehmann and Cutbush (1952). Subsequently, there have been several surveys in the Nilgiri Hills and other areas by different groups (Lehmann and Sukumaran, 1956; Balgir and Sharma, 1988; Balqir, 1996a). Foy et al. (1956) has reported 55% sickling positive among the Paria Kondhs and 3% among the Jijmor Kondhs in Southern India. Several studies (Saha and Banerjee, 1973; Sukumaran, 1975; Kar et al. 1987;

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Balgir and Sharma, 1988; Mukherjee and Das, 1990; Balgir, 1996a; Balgir, 1999) have highlighted the wide spread distribution of the sickle cell disorders in India. In the Northern India, the B*-mutation is absent, except sporadic incidences, which may be due to traces of the past populations who either have migrated to other places or displaced by other caucasian populations, now living there; or due to the admixture of the people who have common prevalence of sickle cell gene (Balgir, 1996a). Although the sickle cell hemoglobin is widespread in India, yet the following questions still remain to be answered:

1. What is the origin of sickle cell gene in India?
2. Where did the gene come from?
3. Which group of populations has brought this gene to India? Are the tribals the most vulnerable people in India?

India has been a source of attraction since times immemorial. At times, it was also called the "golden sparrow" for its richness. Due to its unique features, migrations of a variety of people from different parts of the world have taken place to India for one reason or the other, and the people have merged as one body in the ocean of humanity. That is the reason now we find unity in diversity in India. When, it is stated that, India is a conglomeration of many castes, ethnic elements, languages, cultures, religions, food diversities, etc. the heterogeneity or admixture of its genetic heritages is also expected.

As regard the origin of the sickle cell gene is concerned, the Indian origin of the gene seems to be ruled out because of a large number of migrations had taken place even in the ancient period when it was not mentioned at all in any ancient scripts or literature.

The tribal communities including the Dravidians in India, were the original inhabitants of India. They were the food gatherers, collectors, and hunting people. They kept themselves restricted to a defined territory and their movements were limited to nearby area only. In those days, there were thick forests, several natural and geographical barriers like wide rivers, high hills, etc. which did not allow far distance migrations in India. These people were following the strict clan exogamy and community endogamy. Therefore, their chance of getting this

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abnormal gene from outside was very remote. They were also not the settled agriculturists as of now but the nomadic people.

These communities were pushed down towards South, Central and Eastern India from the plains of Northern India probably by the first invading people so called "Aryans". The origin of "Aryans" is still uncertain. Subsequent invasions to India were of the Muslims from various geographical locations and ethnic backgrounds. This process was exactly similar to what has happened in the aboriginees of Australia. Most of the diseases among the native aboriginees of Australia were introduced by the outsiders for which the natives had no resistance and used to die, except the recent introduction of medicine and proper treatment for them.

Now, it is difficult to say whether the so-called Aryan people who invaded subsequent parts of India were the people of Indus Valley, from Central Asia or from somewhere else. However, the general concept is that the Aryans originated from Central Asia. As per Labie et al. (1989), the Indus Valley was the location of an advanced agricultural civilization and an area capable of sustaining significant malaria endemicity, a factor indispensable to the selection and expansion for the B*-gene and this civilization was a fully developed ancient state, flourishing about 4000-5000 years ago.

Acquired and innate immunity are important factors in the epidemiology of malaria. Generally, a gene such as the sickle cell, which results in severe morbidity and mortality, could have died out in a population unless certain conditions resulted in a more favourable survival. When the persons with sickle cell hemoglobin are infected with malaria, the infected cells tend to sickle and are selectively destroyed by the body's immune system. Therefore, the sickle cell gene promoted survival in persons infected with a disease that was potentially fatal and, paradoxically, prolonged survival. Allison (1954) in Africa suggested some selective advantage of heterozygous sickle cell trait in malaria endemic environment for maintenance in the population, otherwise, the gene would be rapidly eliminated because most homozygotes die without reproducing and a high spontaneous mutation rate could not account for the high but varying frequencies of sickle cell gene. Further, the people with

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sickle cell trait suffer from malaria not only less frequently but also less severely than other persons.

At the type site of Harappa, two of 29 crania recovered during excavations of the Harappan period (4000-5000 years) in the Indus Valley and peripheral areas cemetery, revealed the cranial lesions indicating chronic anemia. Since no postcranial lesions consistent with the effects of genetic anemias, such as thalassemia or sickle cell anemia were observed, anemia at Harappa was most likely an acquired iron deficiency. A higher frequency of anemia at Mohenjo-Daro may be best explained by a genetic anemia (thalassemia or sickle cell anemia) because the environment zone in which Mohenjo-Daro is located supports endemic malaria (Lovell, 1998). Sickle cell anemia and thalassemia are often thought to underlie the lesions of porotic hyperostosis and skeletal remains at Mohenjo-Daro have revealed these lesions in 7 of the 40 crania, indicating the sickle cell pathology (Kennedy, 1984).

The sample size of Kulozik et al.(1986) study, which proposed independent Asian origin of B*-mutation, was also small. Moreover, the sickle cell gene has not been detected so far among the Indian Muslim populations. Further, the high prevalence of the sickle cell gene among the tribals in India cannot be explained by Livingstone's (1989) postulation and Kulozik et al.(1986) hypothesis.

Labie et al. (1989) have tried to establish the extent of the association of the Asian-Indian haplotype with the B*-gene in geographically distant and distinct tribal populations using haplotypes as anthropological markers to trace the origin and migration of the tribal communities in the Indian subcontinent.

From the haplotype analysis of the tribal populations living in Southern India, they (Labie et al., 1989) concluded that the sickle cell anemia in India is associated predominantly with a single haplotype found among isolated, geographically distant, and endogamous populations. They also proposed a unicentric origin of the B*- mutation and a unicentric origin of the tribal populations in India and hypothesized the possible location of the ancestral home i.e., Harappa and Indus Valley of the tribal populations of the greater India.

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This study had serious problems. This hypothesis is totally against Kulozik et al.(1986) when they say that sickle cell gene was introduced by the Arab expansions in India in the first millennium A.D. The Khond tribe of Andhra Pradesh and also of Orissa state belongs to same ethnic stock. Domb Is a scheduled caste which is a admixture of Khond tribe and Pana schedule caste in these states of India. Labie et al.(1989) have, infact, repeated their study in Kulozik et al. (1986) population, widely scattered in Andhra Pradesh and Orissa. Thus, their Bs-haplotypes naturally will tally with each other. As stated earlier, the original tribal populations from North-Western India were uprooted by the different waves of invaders (Aryans as well as Muslims) and pushed them towards Central and Southern India and remanants of these tribals in some places still maintain and present almost similar genetic picture, irrespective of the physical distance between the various localities of them in India. They do not constitute the separate tribal groups.

Secondly, the historical accounts, socio-cultural features and genetic diversity of the tribals in India do not warrant the unicentric origin of the B*-gene and unicentric origin of the tribals in India. The examination of skeletal remains of Harappans do not reveal the characteristics of B*-genes (Lovell, 1998). Moreover, the high frequency of B*-mutation in the nontribal populations in India does not justify the unicentric origin of the sickle cell mutation in India (Balgir, 1996c). Further, if the Harappa is the original home of the tribals of India, then why the gene is not prevalent among the tribes as well as nontribals of Northern (i.e. peripheral area of Harappan Culture) India? Further, the genetic anemia or sickle cell anemia seems to be absent among the Harappan people who belonged to same civilization and located on banks of the same Indus river (Lovell, 1998). Moreoveri the physical distance between Harappa and Mohenjo-Daro does not warrant this dichotomy.

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Table 1. Haplotype Frequencies at Four Loci (Hb A/S, HinfI-5'B, HincII-3'ψB, HincII-ψB) in the Beta-globin Gene Cluster in Five Populations of Orissa, India.

Haplotypes	Agharia		Gaud		Munda		Santal		Tanti	
	No.	%	No.	%	No.	%	No.	%	No.	%
No. of Chromosomes	46		22		26		34		14	
A+++	3	6.52	2	9.09	4	15.38	3	8.82	1	7.14
A++-	9	19.56	1	4.54	6	23.08	12	35.30	1	7.14
A+-+	2	4.35	0	0.00	1	3.85	0	0.00	1	7.14
A-++	0	0.00	1	4.54	3	11.54	0	0.00	2	14.28
A+--	16	34.78	9	40.90	10	38.46	19	55.88	6	42.86
A-+-	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
A---	2	4.35	1	4.54	0	0.00	0	0.00	0	0.00
S-++	10	21.74	6	27.27	2	7.69	0	0.00	3	21.43
S-+-	4	8.70	1	4.54	0	0.00	0	0.00	0	0.00
S---	0	0.00	1	4.54	0	0.00	0	0.00	0	0.00

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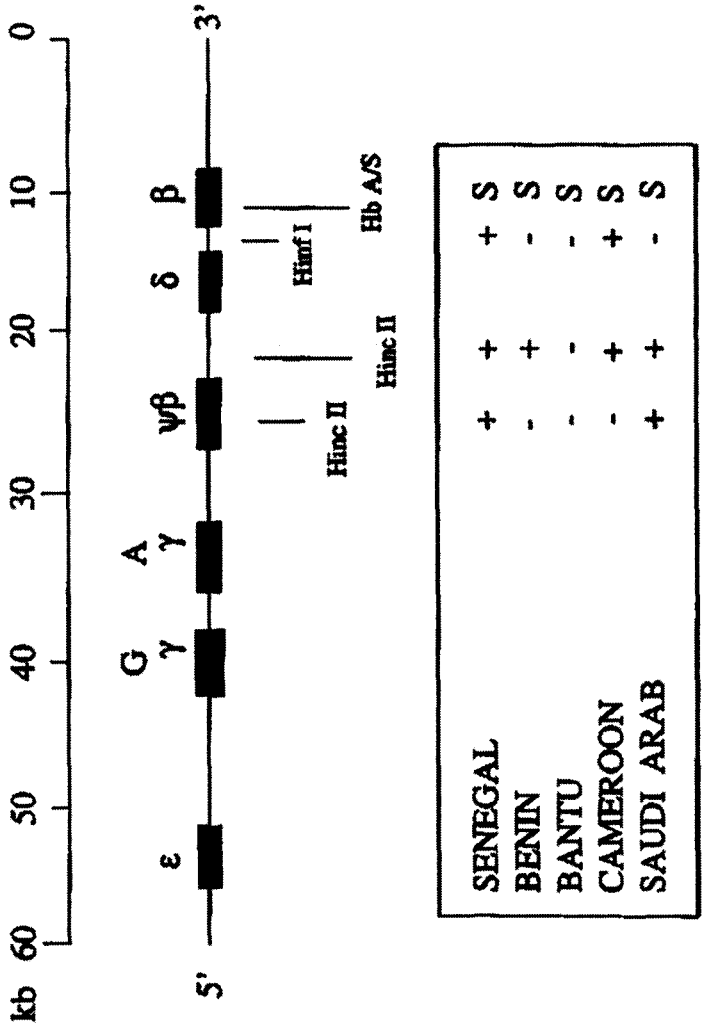

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Current Status

The alternate option is that the B*-mutation in India has no indigenous origin at all! Since the Indus Valley civilization was quite advanced, it might have had links with other similar civilizations or people of other places which knew about each other through their commercial links or otherwise. Since the African continent is credited for the origin of man, it is likely that the Indus Valley people have links with the African people at least for commerce purposes. When evidence exists for the migrations of the West African people along with B*-mutation to North Africa, Mediterranean, and West Saudi Arabia (Nagel, 1984), then why can't it be possible that their migrations took place to the Indian Subcontinent and also to Indus Valley through sea as well as land routes.

Kulozik et al. (1986) have suggested an independent Asian origin of the B*-mutation based on the distribution of different B*-haplotypes prevalent in Africa and Asia. However, 3 out of 25 haplotypes from Orissa tribals and 4 out of 8 from Poona, India showed haplotypes other than the East Saudi Arabian or African types. The East Saudi Arabian B*-mutation corresponds to a mild clinical phenotype associated with high levels of fetal hemoglobin in India and East Saudi Arabia. Furthermore, they also suggested a migration of a west African population carrying the B*- mutation to North Africa, the Mediterranean, and Southwest of the Arabian peninsula. There is no reason why their migrations have not taken place to the Indian subcontinent at that time. In fact, the migrations did take place and Siddis in India have been brought as slaves from Africa.

The presence of Negroid elements in the Indian populations is well documented (Abe, 1983). Kadars of Annamalai of Travancore, Kerala present Negrito racial strain (frizzly hair). The Siddi population of Karnataka, Western Coast (Maharashtra and Gujarat), Andhra Pradesh and in some other parts of India shows Negroid characters. These people are considered to be of East (or West) African origin who were brought to India as slaves during 14th to 17th

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Century (Banaji, 1932). The migrations of carriers of B*-mutation are not an unexpected preposition in India.

It must be kept in mind that, as reported by Kulozik et al. (1986) that the Arab expansions in India took place during historical times i. e., during the first millennium A.D., but the sickle cell seems to be existed much earlier in the Indian (during Indus Valley Civilization at Mohenjo-Daro) subcontinent (Kennedy, 1984). Therefore, it is likely that the B*-globin gene possibly carried by Indo-African, Arab-African, and Indian Arabic trade routes even before the Muslim expansions commenced in India.

Recently, it has been reported that the sickle cell disease is prevalent in Northern Kerala, South India especially in the hilly tracts of Wynaad district, where over 30% of the members of some communities harbour the sickle gene (Feroze, 1987). There are over 100 patients with sickle cell disease registered in the Hematology Clinic at the Medical College, Calicut (Kerala) in South India. A significant point is that, unlike the prevalent BIN-mutation in India, these patients have relatively low levels of fetal hemoglobin and show severe crisis (Menon and Salim, 1993). Balgir (1996a) further asserted that the most plausible explanation, at present, seems to be the migration of the B*-gene from Atlantic

West African region along with the carriers who had frequent contact with India for trade and other necessities since prehistoric times. Admixture of these people with other populations of India is not an unexpected adventure.

The Cameroon B*-haplotype was reported by Gupta et al.(1991) in Gond tribe of Central India and in Mala scheduled caste population of Vishakhapatnam in Andhra Pradesh (Niranjan, 1998). In our study (Majumder et al., 1998), the presence of Benin and Bantu B*-haplotypes in Agharia (General Caste) and Gaud (General Caste) communities from Orissa, India (Fig. 1) further supports, rather testify the Negroid elements in the Indian populations (Table 1).

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Thus, all these B*-mutations including those reported by Kulozik et al.(1986) prevalent in India do not suggest a single Blmutation in India. Further, the above findings are also contrary to the independent Asian origin of B*-mutation as evident from the limited studies carried out and Negroid elements prevalent in India. Thus, it is likely that the B*-mutation has been introduced multiple times from locations outside of India, most probably from Africa.

To answer the questions number 3 and 4 raised above, the social stratification in India must be kept in mind. As mighty is always right, it is stated that the high class/caste people, in general, find fault with the low class/caste people that they (low caste) have introduced this deleterious sickle cell gene from somewhere. Since the scheduled or low castes in India represent buffer population between the high class/caste and the scheduled tribes, it is, therefore, suggested that the sickle cell gene was either penetrated from the tribes to scheduled castes or from the general or high class/caste to scheduled castes through biological contact in India. As stated earlier, the inflow from tribes to scheduled caste is not seems to be possible because they are not exposed to outside influence as well as the biological interaction from low to high hierarchy is limited. There is a general belief that the sickle cell trait (character) is a tribal feature as it is highly prevalent only among the tribal populations of India (Bhasin et al., 1994). Conversely, the recent findings (Balgir et al., 1997a; 1999; Majumder et al., 1998) do not warrant such speculations. The sickle cell gene seems to be infiltrated from the scheduled caste to tribes of India.

On the other hand, the high class/caste populations in India have generally close biological contact and interaction with the outside world and there is likelihood of coming in contact with those people who carry this abnormal sickle cell gene as the fertility is very high among these people (Balgir et al., 1997b). Thus, they transported the abnormal gene from outside India, most likely from Africa through different sea or land routes, which subsequently infiltrated and proliferated

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only in certain communities in India. Thereafter, it penetrated the scheduled caste which is a buffer population between the high class/castes and the tribals.

It had been a practice in India that, when a person does something wrong, disobeying the traditions of a community or high class/caste, the person was ex- communicated from that community as punishment, and being down graded, was free to marry any low caste people and subsequently, this gave rise to a new or separate sect/ caste in due course of time. From scheduled castes to certain tribes once this abnormal gene entered, it multiplied vigorously because of small population size, consanguinity, and community and area endogamy with the passage of time. With the result that this trait is now exclusively found in the scheduled castes and tribals, whereas, it is to some extents has diluted in the general or high class/caste people because of the large population size. However, in some high or general castes, this hereditary trait is prevalent among only those castes which are surrounded by and have interaction with the low caste or tribals, especially in Orissa (East-Central India), e.g. Agharia, Kulita, Chasa (Khandayat), Teli, etc. (Balgir,1996c).

This argument gets further support from the fact that the general castes like Agharia, Kulita, Chasa, Gauda, etc. in Orissa (East-Central India) which are at proximity with these scheduled caste or tribal people possess this abnormal gene in high frequency than the scheduled castes or tribes (Balgir, 1994). Further, this argument seems to be relevant by the fact that the sickle cell haplotypes prevalent in East Saudi-Arabia have similarities with the haplotypes prevalent in India (Kulozik et al., 1986). This further testifies that the general castes and not the tribals of India, had the biological contact with East Saudi- Arabian people long back either due to their trade links, Muslim expansion routes or otherwise. The movements of Gypsy populations from India provide strong evidence for the migrations and the symbiotic relationships in this context not only in the (Middle East) Gulf countries but also in the countries of Europe (Balgir, 1986).

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Further large scale systematic studies among the different ethnic groups and different parts of India would significantly throw light on the true picture of the origin, dispersal in different geographical and ecological niches, and genetic diversity and epidemiology of the B*-mutations in the Indian Subcontinent. This will also reveal the human ethnic and genetic diversity in India.

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ELECTRONIC REPRODUCTION PROHIBITED

References

Abe, K.,
1983 The Siddis of North Kanara Having Negroid characters in their physical appearances. J. Anthrop. Soc.(Nippon) 91:223-230.

Allison, Anthony C.,
1954 Protection afforded by sickle cell trait against subtertian malarial infection. Brit Med J 1:290-94.

Balgir, R.S.,
1986 Serogenetic studies in the Gypsy Sikligars of Northwestern India. Hum. Biol. 58:171-187.

Balgir, R.S.,
1994 Sickle cell hemoglobinopathy in scheduled castes and scheduled tribes of Orissa. Med. Surg. 32:11-14.

Balgir, R.S.,
1995 The Clinical and Hematological Profile of the Sickle Cell Disease Cases in India. Indian Practr. 48:423432.

Balgix, R.S.,
1996a The prevalence of sickle cell hemoglobinopathy in India. In: The Encyclopedia of Dravidian Tribes. Madhava Menon, T., Sivathanu, C., Prasanth, K.P., Sasikumar, M., Mathur, P.R.G.(Eds.). Trivandrum: The International School of Dravidian Linguistics, 1:21-29.

Balgir, R.S.,
1996b *Genetic epidemiology of the three predominant abnormal* hemoglobins in India. J. Assocn. Phys. India 44 : 25 - 28 .

Balgir, R.S.
1996c Geographical and Caste-wise distribution of sickle cell hemoglobinpathy in Orissa. Man and Life 22:149-157.

Balgir, R.S.,
1999 Control and Prevention of Genetic Load of Hemoglobinopathies in India. Natl. Med. J. India 12:234-238. 1

Balgir, R.S., Murmu, B. and Dash, B.P.,
1997a Hemoglobinopathy, G-G-PD deficiency and Blood Groups among the Tribals of Sundargarh District in Orissa.Indian J. Hemat. Blood Transf. 15:27-29.

Balgir, R.S., Dash, B.P., Das, R.K.,
1997b Fetal outcome and childhood mortality in offspring of mothers with sickle cell trait and disease. Indian J. Pediatr. 64:79-84.

Balgir, R.S. and Sharma, S.K.,
1988 Distribution of sickle cell hemoglobin in India. Indian J. Hemat. 6:1-14.

Balgir, R.S., Murmu, B. and Dash, B.P.,
1999 Hereditary Hemolytic Disorders among the Ashram School Children in Mayurbhani District of Orissa. J. Assocn. Phys.India 47:987-990.

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Banaii, D.R.,
1932 Bombay and Siddis. Bombay Gazetteer, Bombay. Vol.xi. p.433.
Bhasin, M.K., Walter, H. and Danker-Hopfe, H.,
1994 Glucose-6-Phosphate dehydrogenase deficiency and abnormal hemoglobins (S and E) in people of India. J. Hum. Ecol. (Special Volume) 3:131-159.
Bodmer, W.P. and Cavalli-Sforza, L.L.,
1976 Genetics, Evolution and Man. San Francisco: W.H. Freeman and Co.
Dunlop, K.J. and Mazumder, U.K.,
1952 The occurrence of sickle cell anemia among group of tea garden labourers of Upper Assam. Indian Med. Gaz. 87:387-391.
Feroze, A.,
1987 A Study of the incidence of sickle cell disease in the tribal population of Wynad district, Kerala. M.D. Dissertation (unpublished), University of Calicut, Calicut.
Foy, H., Brass, W. and Kondi, A.,
1956 Sickling and Malaria. Br. Med. J. 1:289-290.
Gupta, R.B., Tiwary, R.S., Pande, P.L., Kutlar, F., Oner, C., Oner, R. and Huisman, T.H.J.,
1991 Hemoglobinopathies among the Gond Tribal Groups of Central India: Interaction ofc<- and J3-thalassemia with p-chain variance. Hemoglobin 15: 441-458
Kan, Y.W. and Dozy, A.M.,
1978 Polymorphism of DNA sequence adjacent to human B-glogin structural gene: relationship to sickle mutation. Proc. Natl. Acad. Sci. USA 75:5631-5635.
Kan, Y.W. and Dozy, A.M.,
1980 Evolution of hemoglobin S and C genes in World populations. Science 209:388-391.
Kar, B.C., Devi, S., Dash, K.C. and Das, M.,
1987 The Sickle Cell is widespread in India. Trans. Royal Soc. Trop. Med. Hyg. 81:273-275.
Kennedy, K.A.R.,
1984 Trauma and Disease in the Ancient Harappans. In: Frontiers of the Indus Civilization. Lal, B.B. and Gupta, S.P. (Eds.). New Delhi: Books and Books. p. 425-436.
Kulozik, A.E., Wainscoat, J.S., Serjeant, G.R., Kar, B.C., AlAwamy, B., Essan, G.J.F., Falusi, A.G., Hague, S.K., Hilali, A.M., Kate, S.L., Ranesinghe, W.A.E.P. and Weatherall, D.J.,
1986 Geographical survey of B*-globin gene haplotypes: Evidence for an Independent Asian origin of the sickle cell mutation. Am. J. Hum. Genet. 39:239-244

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ELECTRONIC REPRODUCTION PROHIBITED

Labie, D., Rao, S., Dunda, 0., Dode, C., Lapoumeroulie, C., Devi, V., Devi, S., Ramasami, K., Elion, J., Ducrocq, R., Krishnamoorthy, R. and Nagel, R.L.,
1989 Haplotypes in Tribal Indians Bearing the Sickle Gene: Evidence for the Unicentric Origin of the B*-Mutation and the Unicentric Origin of the Tribal Populations of India. Hum. Biol. 61:479-491.

Lehmann, H. and Cutbush, M.,
1952 Sickle cell trait in Southern India. Br. Med. J. 1:404-405.

Lehmann, H. and Sukumaran, P.K.,
1956 Examination of 146 South Indian Aboriginese for hemoglobin variants. Man 56: 95-96.

Livingstone, F.B.,
1989 Who gave whom hemoglobin S: the use of restriction site haplotype variation for the interpretation of the evolution of the B–globin gene. Am. J. Hum. Biol.1:289-302.

Lovell, N.C.,
1998 The Biocultural Context of Anemia in the Ancient Indus Valley. J. Hum. Ecol. 9:205-219.

Majumder, P.P., Roy, B., Balgir, R.S., Dash, B.P.,
1998 Polymorphisms in the Beta-Globin Gene Cluster in some Ethnic Populations of India and Their Implications on Disease. In: Molecular Intervention in Disease. Gupta, Sushma and Sood, O.P. (Eds. Ranbaxy Science Foundation, New Delhi. pp 75-83.

Mears, J.G., Benabadii, M., Belghiti, Y.A., Baddou, M.A., Labie, D. and Nagel, R.L.,
1981a The sickle gene polymorphism in North Africa. Blood 58:599-601.

Mears, J.G., Lachman, H.M., Cabannes, R., Amegnizin, K.P.E., Labie, D. and Nagel, R.L.,
1981b Sickle gene. Its origin and diffusion from west Africa. J. Clin. Invest. 68: 606-610.

Menon, A. and Salim, K.A.,
1993 Sickle cell disease in South India. J. Assocn. Phys. India 41:617.

Mukherjee, B.N. and Das, M.K.,
1990 Spatial distribution of two predominant abnormal hemoglobins: HbE and HbS in Indian Subcontinent. J. Indian Anthrop. Soc. 25:39-59.

Nagel, R.L.,
1984 The origin of the hemoglobin S gene: clinical, genetic and anthropological consequences. Einstein Q. J. Biol. Med. 2:53-62.

Niranian, Y.,
1998 Dynamics of the B*-globin gene in Malas. Ph.D Thesis. Andhra University, Vishakhapatnam.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Pagnier, J., Mears, J.G., Dunda-Bellkhodia, 0., Schaefer-Rego, K.E., Beldiord, C., Nagel, R.L. and Labie, D.,
1984 Evidence for the multicentric origin of the sickle cell hemoglobin gene in Africa. Proc. Natl. Acad. Sci. USA 81:1771-1773.

Saha, N. and Banerjee, B.,
1973 Hemoglobinopathies in the Indian Subcontinent: A Review of Literature. Acta Genet. Gemellol. 22:117-138.

Sukumaran, P.K.,
1975 Abnormal hemoglobins in India. In: Trends in Hematology. Calcutta: Chatterjea JB Memorial Committee, p. 226-261.

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Reproductive Health and Culture among the Mapuche and Tehuelche of South America

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This article studies the reproductive health of native rural Argentinean women of Mapuche and Tehuelche origin, and its relationship to their social and cultural environment, with particular reference to how traditional beliefs and practices interrelate with the public health system and state policies relating to reproductive health. The methodology used is to employ life stories and half-structured interviews in the institutional setting of the family and the community.

Key Words: Fertility, reproductive health, reproductive customs, Mapuche Indians, Tehuelche Indians, Argentina.

Reproductive Health and Cultural Rules

This study is part of a more ambitious interdisciplinary project investigating the social, cultural and biological reproduction of a rural population in Argentine Patagonia, which is unique for its composition, consisting mostly of Indian groups referred to as Mapuches and Tehuelches.[1]

The study aims in particular to widen and deepen the examination of some aspects of women's reproductive health and its relationship to the socio-cultural context of belonging. For three years we have strived to know the reproductive behavior of rural women of the Rio Senguer Department in the Province of Chubut. The information so far collected may lead us to infer a differential fertility in favor of women who claim aboriginal origin and live in the reservation. Moreover, the statistical data compiled by the team reveals an important teenage fertility and an early-peak fertility structure. Contrary to

[1] We refer to the University of Buenos Aires Research Project: "Epidemiologic Auxiology in the Reproduction of the Population of the Rural Departments in the Province of Chubut, with a strong aboriginal component". Nutrition School. School of Medicine. University of Buenos Aires. 1998-2000.

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this, women who can be identified as Mapuches or Tehuelches and live in the district of Rio Mayo have in some cases expressed a desire to reduce their number of offspring.

The importance of the issue may be related to at least two fundamental questions. The first has to do with the scarcity of studies carried out in Argentina about the reproductive health of the rural population in general, and about the aboriginal ethnic groups in particular.

The second relates to the fact that in 2001 Argentina started implementing a Reproductive Health Program in some provinces where there is a high fertility rate. The implementation of these health policies in Argentina, and some decades ago in large areas of Latin America (e.g., Peru and Brazil), involves deepening and improving our knowledge of the reproductive social practices of the population. For this purpose, it is preferable for the programs to be applied among the poorest and less informed social classes, which would include the two Indian groups discussed here.

The criteria used to determine the aboriginal condition of individuals included in our study were: *self-identification* and *place of residence,* since these are considered most suitable.

Toward a Theoretical Approach

a) Reproduction of Population and Social Behavior

Our theoretical perspective sees reproductive behavior as a form of biological behavior that is culturally manifested. Accordingly, looking into women's reproductive behavior leads into the health-disease-assistance process; i.e., the field of reproductive health.

Moreover, as with every human phenomenon, the social practices that affect the health of both mother and child must be regarded as a result of a joint system of interrelated instances or levels. These levels, with a varying degree of complexity and abstraction, include the social reproductive process, the socio-cultural perception process, and individual decision-making. When we refer to the social reproduction process we mean the living or survival strategies carried out by domestic units in order to face, according to certain material living conditions, the problem of existing or living, an aim that in many cases will not

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go beyond the level of surviving" in a certain moment of the development of the economic system. We should point out that these are not occasional arrangements made by families to face times of crisis, "but general arrangements linked to and conditioned by the sort of current development in a specific society." (Chávez Borjas, p.22. Chiriguini,MC:1997).

Simultaneously, these living strategies adopt the cultural characteristics of the context of belonging. It is this that makes a connection with the socio-cultural level through the idea of social representations.

This notion refers to a certain vision of the world apprehended as social subjects, and to a way of interpreting and thinking about everyday reality; it is, therefore, social thought built up around somebody or something. In the empirical field it is expressed by means of the words, wishes, hopes and standards of a group that we identify with or oppose. This concept should by no means be mistaken for predetermined behaviors, marks or seals that homogenize the behavior regardless of the social group. This may be said even about those populations that are considered to be more tied to traditional cultural patterns.

It is from this theoretical standpoint that we propose the following reflection: it is the genre social representations, social constructions of the female and male, that make women's reproductive behavior meaningful. This idea does not imply homogeneous social responses, but to the contrary, realizes that social groups often hold divergent views (Grimberg: 1995) Such behaviors often reveal the contradictory nature of the social organizations in which the subjects are involved. The privileged "mediation" for the comprehension of these social representations is the language, what is said and what is kept unsaid.

In brief, our study aims to know how in the social reproduction process the material conditions of existence account for the behavior of a population and how culture acts as a contextual determinant. We see that the living strategies carried out by a group in certain material conditions are shaped by the cultural factors that exist at every stage of the development of the economic system.

Culture in itself is worthless as an independent variable. It cannot account for the existence of certain cultural guidelines

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and the transformation or "oblivion" of others. To understand the reason for a high fertility rate that might be affecting the health of both mother and child, it is not enough to look for the answer in the existence of "traditional" cultural patterns. At the same time, a given fertility pattern does not necessarily depend upon an intentional and conscious calculation of an intended desirable number of children. (Harris: 1987)

Recent studies carried out in sub-Saharan Black Africa sustain a theoretical interpretation similar to ours. This region of the world only started to change its fertility rate in the 1980s, and the cause of this change is associated with the collapse of the ancient rural system and not to traditional guidelines that resist family planning policies. (Caldwell J., et. al.: 1992).

In Latin America, several studies state that fertility is related to the economy, social organization and prevailing standards. The high rate of fertility in rural communities is the way to secure reproduction in populations with a high death rate and in situations where people are needed as a supply of labor. Simultaneously, the high rate of fertility prevails in the more impoverished urban social settlements as long as the children contribute economically to the survival of the family group. (Lommitz, L.: 1974). At the same time, there are studies of the effects of the health system in some rural areas of Mexico on the reproductive behavior of the aboriginal population (Quesnel, A.; Lerner, S: 1993). In a recent research project in Chile within the Mapuche population, it was found that women who stick more closely to traditional standards show a slightly lower fertility rate than other women (Oyarce, A. M.; Schkolnik, S.1991).

b) Reproductive Health and Social Behavior

Our research into aboriginal rural populations revealed high fertility and early childbirth. This situation encouraged us to look into different dimensions of reproductive health, because we knew of the risk to the health of mother and child when there are many offspring early in the life of the mother.

We regard reproductive health as a state of social, mental and physical well-being in all aspects connected with the reproductive system, its functions and processes. Bearing in mind also the notion of reproductive rights, we set ourselves the

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following aims at this stage of the research: First, to recover the knowledge of "traditional" practices[2] related to reproductive behavior and to assess the provision of information about such knowledge by the official health system implemented by the government of the province. Second, to know how women perceive the different reference systems concerning reproduction: the one prevailing in the community and the one spread by the health institutions.

c) Women as a Unit of Analysis

Reproductive behavior, seen as fertility in unions between men and women (Torrado S.: 1993), requires incorporating the viewpoint of both women and men involved in the family reproduction process, since the decisions about reproduction are made in the context of the home and the couple. On several occasions, the larger family and community are involved. In the communities studied here, there were factors that hindered men's participation at this stage of the research. In the summer months during which the research was carried out, most of the men were not in their homes, but at work doing sheep-shearing or employed as farm workers on the farming estates (estancias). Also, it has been observed that these issues were regarded by the females we interviewed as "women's talk," an outlook that hindered the participation of their few male companions at home.

Some Historic and Cultural References of the Population Studied

The women studied here are mostly of Mapuche[3] and Tehuelche descent[4]; these are two ethnic groups that peopled

[2] The notion of "traditional" practice, following E. Menéndez, should be understood as that put into practice by the specialized people outside scientific medicine and that is usually related to certain social classes, such as the peasants, aboriginal groups, low urban classes, etc.

[3] Mapuches: Ethnologically, "Machu" (land) and "Che" (people). Originally native to the south of Chile, and farmers and shepherds, the Mapuches began their incursions into the Argentine Patagonia in the 17th century. In the past century they defeated and mingled with the Tehuelches.

[4] Tehuelches: Ethimologically, "brave men," and it refers to the way they defended their women and territory when they were attacked by the Mapuches. The Tehuelches were a native ethnic group of nomadic hunters who inhabited the Argentine Patagonia.

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the Argentine Patagonia for several centuries in a dynamic process of changes and contacts that was deepened at the end of the last century by the arrival and settlement of the white man. From then on, the aborigines who survived the ouster were settled in delimited territories, thus giving rise to the forced sedentary life of people who had been nomadic hunters. This was true with the Tehuelches.

The territories we refer to are the reservations, that is, certain lands, also known as colonies, usually the least productive ones, that were set aside for the relocation of the aborigines. In most cases, the aborigines were not given a deed of the plots. The exceptional cases in which deeds were provided were the result of years of struggle. A consequence of this is the instability that affects these groups, especially because the different governments have systematically and unilaterally reduced the perimeter of these lands. On many occasions, the illegal ouster was carried out by the estancieros (ranchers), who took advantage of the leniency of the local authorities.

Life on the reservations, as place of confinement, was (after the period in which many Indians were exterminated) the hardest situation the aborigines had to adapt to. The guanaco and avestruz, which were their source of food and raw materials and which were sold or swapped for provisions, soon died out. It was culturally difficult for them to breed sheep - that is, to become shepherds. And the lack of protection by the government often forced them to leave the community to survive. This situation produced changes in the domestic units; in many cases, it dismembered the family because men left to look for a temporary job on the nearby farming estates (estancias). Some of the men settled down permanently in neighboring towns or became temporary farm workers away from their family groups. The situation has been changing over the past few years; now, it is the women who either migrate when their children become of school age, or under other circumstances go and live with men outside the community. This situation is making the countryside more masculine. Loneliness during the long, cold winters, and the temporary paralysis of rural activities, encourage alcohol consumption and

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sometimes violent behavior, according to reports provided by local health agents.

It is worth remarking that, over and above the antagonistic relationship between these populations and the white community, there is a common long-term factor: that, as time goes by and under the changes that have taken place, it is increasingly difficult for those populations to reproduce their lifestyles without civil servants, collectors and traders. The hardships to survive lead them to depend more and more on the rations - "vices," so called by the Mapuches - provided by the government to prevent the hunger that results from the difficulty of living in accordance with traditional strategies.

Sociodemographic Aspects

The most important characteristic of the Department of Rio Senguer in connection with this research work is its demographic composition, which consists of a very young population with large aboriginal component, with a high ratio of men to women. According to the data we have compiled. In the Tramaleo colony, that figure is 208 men per 100 women and it is 160 to 100 in the Chalía. This information will be of interest when we analyze the prospective marriage markets and the migrations, which mainly affect women.

About fertility, the most usual measures for its study reveal a decrease in the rate throughout the province of Chubut. For the period 1990-1995 the Global Fertility Rate was 3.16. Until 1980 this figure was as high as 4.0 children per woman. As regards married life, Chubut's main characteristic is a high rate of precocious marriages. According to data published for 1994 for this Department, 22.3 per cent of children were born to women under the age of twenty. At the same time, the group average for women between 20-24 years is 28.4 (for the period 1992-1994). This makes Chubut one of the early-peak, high fertility populations.

Surveys and interviews among women residing in the colonies reveal a high fertility pattern, with levels above the rest of rural women, if compared with the statistical information published. While it may still be too early to find an answer at this stage of the research, there is no doubt about a greater number of children among women regarded as Mapuche and

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Tehuelche, whose residence is the colonies. This differential fertility can be observed in all the women over the age of forty five, where the number of children is greater than an average of six per woman.

We should keep in mind the figures given above about the Average Birth Rate and the Final Offspring rate for this rural area. Furthermore, such figures largely outnumber those of the Mapuche population of the republic of Chile, where their Global Fertility Rate is 4.0 children per woman, with a remarkable declining tendency. Likewise, women between 30-39 years of age in the reservations of El Chalía and Aldea Apeleg have six or more children, which indicates a high fertility for a group of a certain age that has not completed its fertile period. (Chiriguini, M. C. 1997).

Health Care: The Interrelation Between the Official System and Traditional Medicine

It is important to highlight what health care is about and how it develops. In that context, we will refer to "official" and "traditional" medicine.

For about ten years the provincial government has been showing interest and taking an active role in health care among the local aboriginal population. This health policy has equipped some health centers with medical and surgical facilities, beds for confinement, and delivery rooms attended by a nurse and a health agent. These health agents, mostly people from the communities, detect child and mother malnutrition, carry out first-aid, carry women in labor and sick people to the hospital, assist women in labor during delivery in situations where medical assistance is unnecessary, and control hydatidosis (an endemic disease transmitted by domestic animals). These are but a few of the agents' most important responsibilities. But we consider their most important function to be their role as a communication channel between the society and the aboriginal community, providing a link in health care, education and general policies directed toward these populations.

In spite of the advantages of the system of rural health agents, we cannot fail to mention some facts about it: The distances to cover are extremely long, if we consider that to get

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to El Chalía reservation from the nearest town takes about a two hours' drive by ambulance or four hours on horseback. Moreover, the hospital equipped with an operating room is 100 km. away. This situation gets worse from April to November because a part of the reservation is stranded first by snowfalls and then by the thaw - not to mention the low temperatures, which fall to 25 degrees below zero.

This isolation demonstrates the precarious health care these groups receive throughout a great portion of the year, and this is especially marked for children and women in the reproductive stage of their lives. Because of this situation, it is important to highlight the traditional medical skills of some women, still practiced, that enable them to face any kind of emergency. Among the traditional practices are childbirth assistance, knowledge of medicinal plants, and inducing abortion. These skills, jointly and in addition to official medicine, protect the community.

The local health care system is supervised by the Hospital de Rio, which organizes the work of the health centers that are in direct contact with the communities. The attention is focused on prevention and winning over the patient. Great interest is put in women within the reproductive age and, in fact, most cases are in this area. The agents' concern is to detect pregnancy in the first months. From then on, the usual analyses are carried out, potential birth-risk is assessed, especially the possible need for caesarean birth, which entails transporting the woman to Comodoro Rivadavia, a city five hours' drive by ambulance.

It is in this geographical and social context that both traditional and official skills act jointly. Some women have delivered more than one child on their own, sometimes because of isolation, sometimes out of their own free choice, and sometimes assisted by a native midwife. In these cases, everything is done as it was in the past, from the midwife's position to the medicines taken before and after the birth, including the burying of the placenta.

The community health agent's training is the main guarantee of success of the health system in the area. The agents' communication with women, and the trust the women put in them, account for the women's agreeing to have their babies in an unfamiliar place outside their homes.

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Methodological Aspects

Keeping in mind the aims proposed, the characteristics of the population being studied and their place of residence, this research work was carried out in three stages over a period of three years. The settlement of the different reservations - El Chalía, Loma Redonda, and Pastos Blancos – is dispersed, and this was an obstacle. It was also, as just mentioned, impossible to reach them after April due to climate. We have included in this study the quantitative information published and statistical data compiled by the research team.

In the first and second stage a semi-structured survey enabled the assessment of the population structure according to sex and age, number of children, the parents' ages when they had their first child, the unions, and the schooling level of everyone in the domestic units. Perhaps the most important aspect was to get in touch with the women to gain their confidence. This enabled us to implement qualitative techniques and thus obtain information with higher intensity. Going deep into an unknown world and establishing trust affected us both in the professional field and because we are ourselves women.

The third stage of the field research was carried out in the El Chula reservation. This locale was selected because of the scarcity of women with children in Pastas Blanches and Loam Redondo and the difficulty in traveling daily to the domestic units of those reservations. Many of the interviews are real accounts of life experiences. We have included the views expressed on other social subjects committed to the official health system, such as about the director of the Rio Mayo Local Hospital, the health agents and the nurses.

First Conclusions: Breaking Through the Interior Wall

To carry out this research work we have had to break into the private lives of these women, called *paisanas*[5] (country women) in and out of the colonies, and share, for long hours and days, their everyday routines, which is an intrusion they are not used to in the solitude of the reservation. The chief topics of

[5] The term "Paisana" identifies the aboriginal origin, Mapuche or Tehuelche, in these lands.

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conversation were the children, deliveries, the women's expectations and desires about maternity, and the couple's relationship and contraceptive methods. This was "women's talk," although not all of it was things the women discussed among themselves. It included the view the women took of their world as women, with their hopes and restrictions. It involved, too, their perception of the broader world as a cultural construct, including social, cultural and economic conditions of the milieu within which these women develop their lives.

We have looked in as deeply as possible, although perhaps not deeply enough. The men's outlook is missing. That is the next stage of the research. For what we have done, we can set out the following results:

1. Among women who had not passed the age of fertility, we could not perceive a wish to reduce their number of offspring. We might regard this behavior as a response to the need to reproduce the workforce. The investment in children would be beneficial through incomes, workmanship, and/or care-giving during old age (Harris, p.20). There are probable advantages of a large family in the land ownership system within the colonies.
2. Women today begin to have children at earlier ages, earlier than their mothers and most of their grandmothers. Some of them are almost thirteen or fourteen-year-old girls. In the past, still fresh in the mind of our participants, women were far more protected and shielded. They remember how the bride used to be ravished on some occasions, while on others a price was agreed on. Our respondents remembered those as the golden days of prosperity, when people lived under the rule of a *cacique* who inspired higher respect and authority.
3. We noted a positive view towards women in these populations. The woman is valued as a mother and wife, for her household chores and her traditional skills. This is so, in spite of her economic subordination throughout the various stages of her development to her father, brother and husband. At first, this sense of value is related to the beginning of puberty and of her reproductive potential. Later in her womanhood it comes in as a housewife who

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takes the lead while her husband is at work in the estancias (farming estates) or at home and unemployed in winter. She will shear sheep, if necessary. And after completing her fertile period, she will assume a different social role by looking after her grandchildren. This behavior is related to the fact that women have their first child at a very early age, as previously commented, and do not always get married because of this. Many of them live in their parents' home until they go and live with a man. In many cases, the child is in the care of the grandmother.

As in the past, Mapuche women are in charge of curing diseases, for which they have jealously preserved the qualities of the medicinal plants. In this ethnic group the "Machi" was always in charge of looking after the health of her people. Today women are scarce, which accounts for the fact that they are so highly valued as wives. Most of them have lived with more than one man. Among the youngest, the prevailing idea is that men retain them and make them pregnant every year.

4. The health system representatives hold the same positive view of the woman's role within this community. When old men fall ill they are left in the hospital, which takes on the role of being an old people's home. In the case of a woman, there is always a young man or woman willing to take her home. Throughout their lives these women have raised their own children as well as other women's.
5. The statements by health care authorities about the number of children desired by paisanas (country women) who do not live in the reservations differ from our findings. According to doctors and nurses, the mothers are not concerned about the number of children and nutrition problems. The testimony gathered in our research, however, reveals a different reality. Several women admitted that their first pregnancy had come about because of ignorance or wrong information about contraceptive methods.

The women have access to contraceptives through the health service. Our interviews reveal that these are deliberately rejected on the ground that they can produce alterations in the organism. The pill affects their liver, the

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spiral may cause abortion and tying of the Fallopian tubes is forever. We should look deeper into this aspect because we infer that contraception is not felt to be needed by these women, and moreover, they regard these methods as unfamiliar and therefore not wholly understood in their action or consequences.

6. About traditional guidelines related to reproductive health, we can say that the traditional way of delivering, the knowledge of medicinal plants, the contraceptive methods they know, are what make it possible for them to survive in their socio-cultural conditions and their isolated state. These skills represent cultural practices that constitute real living strategies for the reproduction of these communities, which spend most of the year in relative isolation.
7. Among both Mapuches and Tehuelches, children have always occupied a very important place. Those who had contact with them in the nineteenth century, Musters among others, describe with amazement the loving relationship with children that is present under any circumstances. While we cannot yet assert that this cultural norm is the reason for the good treatment we have observed today, we consider we should not fail to mention it.
8. Precocious teenage fertility[6] remains as a pending issue. Many women start having children while they are still little girls themselves. The delivery difficulties and health hazards for the child call for a deeper look into the social, cultural and individual restrictions that might determine this behavior. Eleven women were interviewed in the reservation, six of which had had their first child before the age of sixteen. Two of our interviewees had been eleven and thirteen, respectively.

[6] "Precocious teenage fertility" is defined as that between the ages of ten and fourteen. In this research, we talk about frequency of precocious teenage fertility because in most young girls the birth of their first child took place between the ages of fourteen and fifteen.

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ELECTRONIC REPRODUCTION PROHIBITED

References

Breillh, J.
1979 Epidemiología, economía, medicina y política. Ed. Universitaria. Quito.

Borgerhoff Mulder, M.
1995 Bridewealth and Its Correlates: Quantifying Changes over Time. Current Anthropology. Vol 36. Nr. 4. Washington University. USA.

Caldwell, R., Orubuloye, I. O., Caldwell, P.
1992 Fertility Decline in Africa. Population And Development Review. Vol 18. Nr. 2.

CELADE
1991 Condiciones de vida de los pueblos aborígenes. Estudio realizado en reducciones mapuches seleccionadas de la IX Región. Chile.

CELADE
1994 Seminario taller de investigación sociodemográfica contemporánea de pueblos indígenas. Chile.

Corvalán, M.A.
1978 Mujeres criollas y aborígenes: diagnóstico de situación. Las Lomitas. CENEP. Buenos Aires.

Chávez Borjas.
1992 Cómo subsisten los campesinos. Ed. Guaymuras. Honduras.

Frisch, Rose E.
1988 Obesidad y Fertilidad. Investigación y Ciencia. Pags.78-86.

Grimberg, Mabel.
1995 Teorías, propuestas y prácticas sociales. Cultura, Salud y Enfermedad. Instituto Nacional de Antropología y Pensamiento Latinoamericano. Ministerio de Cultura y Educación. Secretaría de Cultura de la Nación. Buenos Aires.

Henry, L.
1961 Demografía Histórica. Ed. Labor. Barcelona.

INDEC
1997 Situación y evolución social provincia. Chubut. Síntesis Nr. I.

Melliasoux, C.
1987 Mujeres, graneros y capitales. Siglo XXI. México. INDEC. Censo Nacional de Población y Vivienda 1991. Serie D.

Macció, Guillermo
1993 Factibilidad y oportunidad de políticas de población en América Latina. CEPAL. FNUAP: CELADE. Documento de referencia DDR-4. México.

Menendez, Eduardo L.
1981 Poder, estratificación y salud. Análisis de las condiciones sociales y económicas de la enfermedad en Yucatán. Ediciones de la Casa Chata. México.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Minayo, M.C.S.
1994 O Conceito De Representacoes Sociais Dentro Da Sociologia Clássica. In P. Guareschi & S. Jovchelovitch, eds. Textos em Representacoes Sociais. Petropólis: Vozes, pp.89-111.

Mychaszula, S., Pollitzer, G., Somoza, J.
1990 Encuesta Prospectiva de una Población indígena (EDMAPU). S. de Chile. CELADE.

Pantelides, E., Cerrutti M. S.
1992 Conducta reproductiva y embarazo en la adolescencia.CENEP. Cuadernos del CENEP Nr. 47. Buenos Aires.

Pantelides, E.
1990 Un siglo y cuarto de fecundidad Argentina: 1869 al presente, en IUSSP, CELADE, CENEP. Seminario sobre transición de la fecundidad en América Latina. Buenos Aires.

Okeidiji, F.
1974 Comportamiento reproductivo individual y valores culturales. Serie de conferencias sobre la población. Unión Internacional para el Estudio Científico de la Población. Bucarest.

Oyarce, A. M., Schkolnik, S.
1991 Una investigación multidisciplinaria en reducciones indígenas de Chile. CELADE. Chile. Instituto Nacional Indigenista 1993. La salud de los pueblos indígenas de México.

Quesnel, A., Lerner, S.
1994 Salud reproductiva en el medio rural mexicano: aspectos sustantivos y metodológicos para el análisis de las trayectorias reproductivas en estudios sociodemográficos de las poblaciones indígenas. CELADE. Chile.

Torrado, S.
1986 Salud, Enfermedad en el Primer Año de vida. Rosario 1981-1982. CEUR.

Torrado, S.
1993 Procreación en la Argentina. Hechos e Ideas. Ed. de la Flor. Buenos Aires.

Torrado, S.
1981 Sobre los conceptos de estrategias familiares de vida y proceso de reproducción de la fuerza de trabajo. Notas Teórico Metodológicas. Demografía y Economía XV 2. CEUR. Buenos Aires.

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The Great Sex Divide

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Understanding Individual Differences: Critical Human Service Component*

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Abstract: This paper raises questions concerning politization of social science and specifically psychology. In what is arguably a concerted attack on traditional knowledge, social scientists are increasingly encouraged to ignore the impact of neurological disorders on a person's academic and professional success. Basic data-based psychological tenets, such as the viability of general intelligence and applicability of standardized test, are assaulted as vehicles of social oppression. The author avers that misguided reform movements are creating, and will continue to create, major problems not only for mental health professionals, but, more importantly, for their clients.

Key Words: Intelligence; standardized testing; educational reform; clinical assessment; biological correlates of intelligence.

Recently I noticed a person in an adjoining restaurant booth, who reminded me of a person I had known over 30 years ago: somewhat sheepishly I asked him if his name was Turkheim and indeed it was. There's nothing strikingly unusual about Turk's facial features, and the incident prompted me to consider how we might better comprehend human diversity if internal x-rays permitted us to look inside people, and observe perceptions, values, opinions, skills, and, yes, prejudices.

Early Beginnings

Human uniqueness begins very early. Recent medical advances suggest that we may soon decode a person's genetic structure and, as one example, identify an individual likely to have a particular form of cancer many years in the future. With that knowledge, it may be possible to prescribe pills which prevent the disease. This is not to say that genetics explains all

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that we are or may become and yet I – like all of you – have personal biases, two of which appear in my remarks today. First, I believe in early prevention and intervention and second, all too often we in the helping professions fail to take sufficient time not only to understand human differences and in the process also fall short of appropriately considering neurological and genetic factors which, unless identified and included in the diagnostic process, literally foredoom well intentioned intervention strategies, which in contemporary America are largely based on environmental considerations.

Recent investigations have revealed that powerful interactions of environmental, genetic, emotional and neurological forces occur even before and certainly after conception. Historically, developmental psychologists have encountered enormous and still unresolved obstacles in comprehending not only the genetic code but also why, as the brain develops, some signaling molecules bind to receptors by attracting or rejecting, and what might be done to enhance the impact of attractive forces so that axons maintain forward thrust in completing the wiring of the brain (Hall, 2001; Stein et al, 2001). We now have a better understanding of that remarkable phenomenon.

Early during the intra-uterine stages of life, developing embryo nerve cells, like Odysseus in the ancient fable of the Trojan wars, necessarily travel great distances and withstand numerous temptations to reach their neurologically appropriate destinations. Many embryonic nerves must be good sailors indeed. Finding some targets is similar to striking the bulls-eye at 1,000 yards through a mist and even around several peninsulas. And there is no allowance for error – faulty wiring can severely impair cognitive and behavioral interactions. Throughout that early voyage, brain pairs of signaling molecules optimally interact with corresponding receptors in the neurons, as predetermined by the receptors' protein structure. In this process the axon or signal-bearing cable lines contain a special conal tip which conveys the receptors. But some molecules attract by signaling while other repel, and may or may not bind to the receptors. Consequently and if we use a geographical model, some nerve cells destined for Seattle may end up in

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Hong Kong, with all that means regarding cognitive interactions, academic success, and self efficacy.

Most mental health providers have witnessed the tragic consequences when axons fail to switch on at the right instance, thus thwarting neuronal forward movement. In a global sense, the impact of such developments appears in maternal alcohol or cocaine abuse during pregnancy which may kill or disable millions of brain cells and prompt axons to become deaf to or to ignore molecules originally destined to enhance brain development. More specific damage may appear along a wide spectrum of exceptionalities, including children with ADHD or learning disabilities. Such conditions, affecting more children than many assume, cause windows of learning opportunities to be slammed shut early in life, sometimes before birth. In an ideal world, it is the service provider's task to discern which windows are closed and which remain open and for how long. In other words, to acquire skill in recognizing what, for individual clients, we can and cannot accomplish.

Human Diversity: Responding to Quasi Uniqueness

Regardless of our particular area of service, many of us serve individuals of diverse values, skills, and aspirations. In the enabling process we frequently fail to spend sufficient time to assess human uniqueness. This morning I discuss five controversial issues which I hope will fuel later discussion. First, several case vignettes are reviewed, using masked data: these brief case studies illustrate possible consequences of intervention strategies which fall short of appreciating human diversity. I then link the two vignettes to epidemiological evidence that the magnitude of human differences is far greater than often recognized. Third, Bandura's self-efficacy model is reviewed with respect to the interplay of neurological, cognitive and emotional symptoms. Next I discuss various levels at which human differences are identified and how standardized tests, both aptitude and achievement, constitute some – and I emphasize some – of the most trustworthy and useful assessment arrows in the psychologist's diagnostic quiver for facilitating appropriate matches between a person's abilities, motivations and assigned tasks. Fifth and finally, we examine the current

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drive to provide educational, social, and vocational rehabilitation services, in a manner which underutilizes standardized tests and other statistically driven data. Here a perplexing question arises: do those of us in the helping professions shoot ourselves in the foot and create obstacles to modulating the impact of adjustment disorders by uncritically supporting which ignore time-honored evidence of human diversity?

Case Vignettes:

Learning obstacles experienced by another person, let's call him Bill, also illustrate the interplay between environmental and biological considerations. Referred to me while in fourth grade, Bill struggled in reading, spelling and to a lesser extent in math. Until Bill was referred to me, no school representatives had interviewed his parents.

Probably all of us can recall individuals with whom we have worked and for whom in retrospect we might have facilitated greater self confidence and success, had appropriate attention been given to the interaction of neurological and emotional factors. I vividly recall memories of problems endured by Kenny, a high school classmate in my Wisconsin hometown; he seemed hopelessly incapable of learning. Confused in all academic areas and inclined to prematurely and disruptively cease problem solving, Kenny possessed little self esteem, was noticeably anxious when called upon to recite in class, anticipated failures, bullied classmates, and constructed a self-isolating wall to protect himself from embarrassment. I cannot recall a single classroom incident in which Kenny experienced an opportunity to demonstrate his advanced artistic and visual spatial skills.

Only in recent years did I learn that Kenny's schooling and emotional difficulties were very probably attributable to two primary neurological factors which had gone undetected. First and representing nomothetic considerations, Kenny was left handed and possessed greater competence in right hemispheric than left hemispheric tasks, upon which curricular success is largely dependent. Second, there were ideographic factors: a blue baby at birth, Kenny's early oxygen deprivation probably restricted acquisition of certain language skills which are highly

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correlated with academic success. The fact that Kenny eventually became a successful businessman, exercising acute skills in visualizing how and where future Wisconsin campsites could be constructed, suggests that he was eventually and independently capable of overcoming hurdles unwittingly erected by well intentioned educators and rehabilitation workers who inordinately focused on standard curricular and largely left hemispheric objectives, while ignoring evidence of markedly stronger right hemispheric skills.

From Bill's parents and former teachers I learned that Bill had been frustrated and discouraged academically since – but not before – mid-kindergarten. Resource room assistance was first provided in fourth grade, with little impact; school personnel quickly assented to my suggestions for comprehensive assessment, including a parental interview. Administration of a Wechsler aptitude measure yielded a 33-point verbal-performance split and marked impairments on the Verbal Comprehension and Freedom From Distractibility Indices. Standardized achievement evaluation also revealed wide scatter; in some curricular areas Bill performed far more competently than in others.

Certain demographics suggested the improbability of environmental explanations for Bill's learning and behavioral disorders. There was no evidence of familial learning deficits or detrimental ordinal dynamics, and Bill's four siblings were excellent students. Further, the parents reported that Bill passed the developmental milestones within normal limits until, when he was five years old, the family farm was struck by raging winds. Seeking to drive chickens back into their shed, the father hurled shingles torn from the roof of the farmhouse toward the chickens. One shingle went amiss and struck Bill in the head, rendering him briefly unconscious. After this incident, teachers reported that Bill was distractible, had trouble focusing, was seldom enthused about learning, and was fearful and anxious upon encountering even mild frustrations. Drawing upon the expanded understanding of Bill's quasi-unique learning needs, curricular strategies were revised. School-based efforts were coordinated with parental expectations; follow-up interviews

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revealed significant reductions in Bill's anxiety, depression, and proclivity to socially withdraw.

Integrating Biological and Environmental Data: The Bandura Factor

Well controlled studies reveal that problems such as those of Kenny and Bill are not rare: thousands of adults and children, as well as their families and school personnel, have paid a high price when biophysical and emotional considerations are not integrated into diagnosis and intervention. Consider what we know of only one category of neurological impairment: Attention Deficit Hyperactivity Disorder (ADHD), which has a long history marked by numerous descriptive rubrics such as brain injured and minimal brain dysfunction. Individuals with ADHD presumably comprise 3 to 5% of the population. Moreover, numerous victims of ADHD also present learning disabilities, and concurrence rates are widely believed to constitute 9 to 11% of the American population.

Considerable research indicates that – often because of neurological complications which include genetic proclivities – persons with ADHD and LD present extensive intra-individual cognitive variability, which if not accurately diagnosed can impede formulation and implementation of appropriate strategies and thus exacerbate dynamics which contribute to low self confidence or, employing a term that has gained recent coinage, self efficacy.

Albert Bandura, whose investigations have created new understandings into biophysical and emotional linkages, proposes that efficacy or positive expectations flow from a series of interrelated actions. First, when a task is performed well, efficacy expectations increase and the threat of failure subsides. This is likely to facilitate sustained effort on later tasks. Psychological arousal is more manageable if tasks are seen as attainable and if so the anxiety level declines. Moderate anxiety then facilitates positive feedback, which adds to later efficacy expectations. But – and this is important – information the person receives enhances self efficacy only if seen as reflective of a person's abilities. When individuals consider external factors responsible for success, self efficacy declines. Not surprisingly,

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longitudinal data indicate that self efficacy is linked to field independence and to academic and vocational success.

If self efficacy is related to one's perception of deserved success and if success is often contingent on neurological factors, when do biological factors begin to impact on human learning? For some, the beginnings are remarkably early and genetic in origin. Thus genes explain why girls with Turner's Syndrome are more successful when dealing with predominantly left than right hemispheric tasks. Failure to recognize hemispheric distinctions can increase failure rates in academic and other settings, reduce self confidence, and exacerbate emotions which hamper learning. In my experience, parents, school personnel, and vocational experts have generally recognized that a Turner's Syndrome child has marked difficulty on visual spatial tasks, but relative strengths in the language domain. Unfortunately, a common educational or rehabilitative response has been to ignore limitations imposed by brain structure and function and to emphasize visual-spatial enrichment activities in which the person, for neurological reasons, cannot succeed. Consequently the cycle of failure exacerbates emotional symptomotologies.

Phenylketonuria (PKU) is another of many conditions which illustrate the interaction of emotional and neurological factors. A recessive condition linked to mental retardation and a by-product of an inactive liver enzyme, PKU is a condition which illustrates the linkage of genetic/neurological disorders and emotional symptoms such as anxiety, temper tantrums, and depression and social anxiety. Years ago I worked with parents who implemented a dietary treatment program which had the potential to modulate the adverse impact of PKU on cognitive development. However, the diet was rigorous and often not implemented because of emotional factors embedded in interaction of children and their primary caretakers.

Following Bandura's formulations, we can assume a high incidence and greater severity of emotional symptoms if we fail to facilitate a reasonable concordance of what a person can do and is expected to do. It is therefore at least arguable that contemporary social science may place insufficient attention to comprehensive assessment.

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The Role of General Intelligence

Should thorough assessments be implemented, g or general intelligence is where we should typically begin, and then proceed to appraise behaviors within the two primary domains of g – crystallized intelligence or well learned facts and primarily left hemispheric functions, and fluid intelligence, generally holistic in nature and reflective of right hemispheric functioning. Beyond amplifications of g lie a multitude of diagnostic considerations, so many in fact it is unrealistic to assume that we presently have the knowledge to assess the multiple subtle relationships that bind emotional and neurological phenomena.

Evidence that g is a robust personality component continues to accumulate; a team of German and English psychologists recently reported evidence that intense mental activities activate certain small and clearly defined regions of the frontal lobe. Science may soon document how early neuronal dynamics in the developing brain promote or deter acquisition of higher g functioning. Few social objectives warrant greater attention in our multicultural society, where issues arise daily with respect to such controversial issues as ethnic ratios in special education classes, in positions held in various businesses and industries, and in admission to institutions to higher education and to the professional schools. In some quarters, g is seen as the foe of minority groups but the reverse may be the case: recently, extensive regressions of income and occupational status on the g factor scores of black and white Americans produced responses contrary to popular opinions. No evidence of bias against minorities appeared for any job status at any level of g. Thus when income and job status were controlled and the level of g was factored in, whites proved to be relatively more disadvantaged (Nyborg and Jensen, 2001).

If *g* is to be employed in responsibly translating understanding of individual differences into appropriate intervention designs, it is useful to assess the manner in which the two major components of g, crystallized and fluid intelligence, which are roughly conceptualized into cognitive functioning of right and left hemispheric activities, present opportunities for enhancing self efficacy. The two hemispheres

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are not only asymmetric, they involve different perceptions of reality; each half has its specialization, despite cross hemispheric talk facilitated by the corpus collosum. Generally the left hemisphere, more heavily weighted in language functions and in crystallized intelligence, more significantly influences logical, analytical and sequential processing as well as retrieving, understanding, and correctly sequencing letters and numbers. With its relatively greater weight in fluid intelligence, the right hemisphere generally plays a more pronounced role in holistic and simultaneous learning as well as synthesis of visual, spatial, musical, and artistic stimuli. These basic hemispheric differences have numerous direct implications for service providers. As just one example, it is useful to recognize that right hemispheric lesions are likely to result in fragmentation of visual-constructive tasks.

Neurological-Environmental Connections

Dyslexia, not a diagnostic entity because of various cultural-specific manifestations which include genetic proclivities, provides still additional evidence of neurological-emotional interaction, especially when Bandura's formulations are considered. As one illustration of this, a recent study of Italian, English, and French dyslexic children revealed that, across nations, dyslexics were equally impaired with respect to their controls in reading and phonological tasks. Positron emission tomography scans during implicit and explicit reading revealed the same reduced activity in a region of the left hemisphere, consistent with other evidence of a universal neurocognitive basis for dyslexia in reading performance. However, a relatively higher proportion of Italian dyslexics used more shallow orthography which facilitated reading. Again it is reasonable to ask how many people have suffered emotional harm when service providers ignored neurological and genetic implications and, consistent with prevailing schooling practices extensively focused on curricular or environmental issues.

Some psychologists skillfully differentiate subtle associations between emotional symptoms and neurological disorders by detecting localized irregularities which may occur in such brain sections as the Broca and Wernicke areas, and in assessing brain-

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behavioral-emotional implications depending on the speed in which a person processes information.

Gray's research goes one step further and documents how ADHD is linked to basic brain structures: in such cases environmental intervention alone is insufficient. Thus in Gray's formulations the Behavioral Inhibition System acts to inhibit behavior in new situations, such as those events which elicit fear, punishment or non-reward; the Behavioral Activation System is unusually sensitive and responsive to reinforcements and rewards. For some individuals diagnosed with ADHD, behavioral problems are inordinately linked to an under active Behavioral Inhibition System which, in the absence of our understanding of what a person experiences and can realistically be expected to accomplish, is likely to create obstacles in inhibiting and effectively employing self regulatory and executive functioning.

Gray has also illustrated how hemispheric structures of the brain implicated in ADHD influence quasi-unique cognitive patterns. Should such patterning not be identified and appropriate educational strategies delayed or not implemented, Gray's biophysical and Bandura's more situational model both predict increased risk of low self efficacy. For non-environmental reasons, neurologically impaired children may require intervention which accommodates biological knowledge. This is because some of these children may present (1) smaller than average right frontal areas, caudate nucleus and globus pallidus, (2) somewhat larger right hemisphere than left, which is sometimes associated with inhibition problems, (3) decreased blood flow and lower glucose employment, (4) under arousal as indicated by electrical responses, assessment of heart rate, and skin conductance, and (5) unusual brain chemistry implicating the neurotransmitters, dopamine and serotonin. Any of these and related neurological conditions ideally require sensitivity and skill translating the impact of cognitive profiles into realistic learning objectives.

In deciding whether to appraise the interaction of children's neurological disorders and emotional symptoms, service providers must answer three questions. First, does brain structure and function play a significant role in emotional patterns and human learning? Second, does success promote

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self efficacy and, finally, do providers perform a more credible role if they assess possible linkages of a person's behavioral/learning problem, cognitive strengths and weaknesses, and self efficacy? Current literature reveals that providers are sharply divided on all three questions.

How Much Can Schools Accomplish?

Consider current schooling practices; for those of us working with adults, the dynamics can be easily translated into issues dealing with the world of work. Seeking to clarify such issues and influence public policies, James Popham recently deplored the current trend to rate or grade schools on the basis of what children learn, as judged solely by standardized test scores. Popham contends that educators are in a "no win" situation if they accept accountability based by student learning rates since most of what students learn is dependent on home influences and genetics, which include issues germane to the interplay of neurological disorders and emotional symptoms. Nonetheless many influential educators and a large proportion of the general public assume that schools are largely, if not exclusively, responsible for what children do or do not learn. One popular school-based reform – with variants referred to by such rubrics such as mainstreaming, untracking, and inclusion – essentially claims that all children can perform high level tasks, irrespective of individual children's personal developmental history, existing knowledge base, or what has and does occur beyond the classroom. As a classroom teacher in inner city schools I was sometimes coerced into untracking or "inclusive": effective teaching was simply impossible as I struggled, under administration fiat, to teach the same material to eighth grade students whose reading skills extended from second grade through the first year of college.

Moralizing Education and Psychology

The inclusion perspective assumes that giving students work on their existing skill level—thus adjusting curricula expectations to the diversity of student abilities and competencies and assessing biological and ecological factors—is undemocratic and aimed at perpetuating presumed social injustices. Recently at our university the administrator of an inner city school district

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informed prospective teachers that he regularly urges students in his district to believe that they can all become doctors: the majority of children in that school performed far below national norms. Given Bandura's formulations of self efficacy, it is difficult to imagine a better scenario for creating low self esteem and learned helplessness than urgings that they all become doctors.

Should all students be provided demanding curricula irrespective of what they are capable of learning? Many of the upper class and graduate students I teach generally respond with an enthusiastic "yes." Invariably however a high proportion of these students and future educators know little about assessment, the interplay of biology and environment, self efficacy, the dynamics of human development, the relevance of understanding the diversity of student potentials, and how one packages knowledge of student quasi-uniqueness into appropriate intervention strategies. As one illustration of this, in one of my university classes a graduate student who taught four autistic children questioned the value of employing standardized achievement scores *as one tool* in guiding instruction: trained in the "problem solving approach", she taught the same material to her four special students. Open to new ideas, the student willingly agreed to secure the children's scores in one critically important curricular domain: vocabulary. To her surprise, student performance on the vocabulary test extended from the second to 62nd percentile. No aptitude scores were available for the children: more comprehensive assessment might have revealed a significant verbal-performance split, with direct neurological, emotional, and curricular implications. Given the current anti-standardized testing mood in this teacher's district, it is difficult to comprehend how teachers differentiate attainable from unattainable curricular objectives any more effectively than my inquisitive student who had given similar assignments to her four charges.

For better or worse, the "one size fits all" curriculum has marched into American schools, espoused by some of the most influential leaders of contemporary American education. Thus in a recent American Educational Research Association's presidential address, James Banks (1999) proposed that

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educators' greatest responsibilities are not to seek truth but to conduct studies which produce "greater social good." To reach that goal, Banks urged inclusion and thus placement of children in the same instructional groups regardless of health history, academic skills, or aptitude. Conversely Banks attacked standardized and especially aptitude or IQ tests as instructional instruments by those who "seek to disempower marginal groups and groups of color," which implies that mainstreaming opponents are "racist."

It is rather surprising that Banks, speaking as past president of the AERA, impugns as "racist" those who base educational strategies on both biological and environmental influences. Banks reserves his praise for those "anti-racist" social scientists who persuaded the Supreme Court in *Brown vs. Board of Education* that busing, or assignment of children solely on the basis of race, would significantly increase learning profiles of African American students.

Those whom Banks attacked as "racist" were simply social scientists who, calling the shots as they saw them, predicted that busing would prove unhelpful and probably even harmful to African American children, a prediction that has come true. (Jackson, 2000; Scott, 2000) Has forced busing enabled educators to close the ethnic achievement gap, as scientists praised by Banks anticipated? Hardly. In April 2001, the National Educational Goals Panel reported results of its seven year study of reading and math scores of the National Assessment Educational Program. And the results? Discouraging: the gap between reading scores of white and minority students widened. Said Emily Wurtz, the group's acting director: "This is puzzling because there's not a quick fix answer," (to closing the racial achievement gap). (Waterloo Courier, April 17, 2001; Zernike, 2001) Panel officials "were at a loss to explain results" and will remain in a muddled mental framework until the climate in American social science permits researchers to honestly report data, without risking *ad hominem* attacks such as exemplified by Banks' prestigious AERA presented address: coercive language can only discourage civil debate aimed at implementing effective education for all

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students, irrespective of such variables as social class, individual class, and ethnicity.

Current emphasis on inclusion and de-emphasize on standardized testing not infrequently pressures psychologists to ignore the impact of neurological disorders on a person's academic and professional success. Jeannie Oakes, perhaps the single-most influential mainstreaming proponent, alleges that aptitude testing is based on what she terms "such erroneous concepts" as the viability of general intelligence or g, that g is fixed early and that early learning skills are common precursors of later educational and vocational success. Intelligence tests, says Oakes, have created and perpetuated social and ethnic inequalities and bias by emphasizing the significance of heredity and biology to human development. Further, the American Psychological Association (APA) has financed publications which deny that intelligence is in part genetically determined—I must repeat the words "in part" since virtually no research validates the irrelevance of genetics to comprehending human intelligence, a relationship well established by longitudinal studies of identical and fraternal twins. Ironically, and indicative of a theoretical divide between APA leaders and members, seven separate APA divisions invited Arthur Jensen to present an address at the 2000 APA Convention, an address which focused on the significance of g to applied psychological practices. But a curtain of silence fell over that presentation, which went unmentioned by the organization's official publication, *The APA Monitor*, in its extensive report of convention highlights.

De-emphasizing Biology and Assessment: At What Price?

There is increasing evidence that large numbers of psychologists are ill-equipped to comprehend the dynamics of emotional and biological symptomatologies, and for this there is a central explanation: psychology and the social sciences have become increasingly politicized. Admittedly the line between a predominantly emotional and predominantly biological condition is often deceptively thin as witnessed by moderate but significant relationships between memory impairment and depression But we seem to be moving toward less, not more, clinical assessment, less but not more thorough assessment.

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Some studies persuasively document de-emphasize in psychology training programs in such domains as administration, scoring, and interpretation of standardized tests. Certain training institutions limit assessment requirements to administration of *one* Wechsler test. Given that many psychologists rate the Wechsler test as the most useful tool in the assessment armamentarium, it is nonetheless difficult to believe that administration of one Wechsler test – whether that one test be the *WPPSI, WISC,* or *WAIS,* – suffices if a prospective psychologist is to obtain requisite assessment skills. Even the Wechsler, a relatively straightforward instrument, requires finely honed competencies: no single pattern exists to appraise quasi-unique patterns of brain damage, emotional, or social/culture impairments. Wechsler assessment requires not only sensitivity in identifying nuances along such variables as memory, learning, perceptual organization, problem-solving, abstract reasoning, ability to shift set, attention, concentration and perseverating behavior: the evaluator must synthesize the data and present viable reasons *why* these behaviors occur.

Referral sources understandably expect psychologists to command certain knowledge such as that people with brain injury generally perform more effectively on verbal than performance tasks. Additionally, relevant subtest patterns often warrant central considerations; as one example, Digit Span and Arithmetic scores are frequently lower in a brain damaged population, especially if there are left hemispheric lesions. Low scores on the Block Design subtest should be viewed as possible evidence of right hemispheric damage. Other nuances further challenge serious psychologists. Thus although the Information, Picture Completion and especially Vocabulary subtests often prove most resistive to organicity, some brain injured individuals encounter their *greatest* difficulty on the Vocabulary subtest, especially if there has been left temporal damage marked by deficits with word comprehension, retrieval, and language expressiveness: these are all behavioral domains which can significantly impact on self-efficacy, within and beyond home and school.

Critics are of course correct in pointing out limitations of standardized tests. But the larger risk lies in not recognizing how

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such measures can be appropriately used, not in throwing the baby out with the bathwater. Ideographic and nomothetic data reveal that a substantial number of individuals present developmental and neurological disorders with powerful biological correlates which not uncommonly result in a broader band of intra-child cognitive variation. Further, and if we accept Bandura's postulates, a person suffers lower self efficacy if his or her quasi-unique learning profile is not identified and appropriate steps not taken to match curricular expectations with what a person can realistically be expected to learn in a manner which provides more basic learning to the less experienced person, and more challenging tasks for the individual prepared to succeed in such tasks.

Standardized measures provide psychologists with some of the most demonstrably valid measures for ascertaining what a person with or without a neurological disorder can and can't do, and thus provide some of the most useful guides for appropriate intervention designed to ameliorate emotional symptomatologies. If we are to maintain psychology's presumably apolitical mission and authentically serve society and those diverse individuals who comprise it, the interactive influences of environment and biology must be addressed in civility: Let the talks begin.

References

Associated Press
2001 Report: "Learning Gap Widens." *Waterloo Courier*, April 9, p A2.

Bandura, A.
1977 *Social Learning* Theory. Englewood Cliffs, NJ: Prentice Hall, 1977.

Banks, James
1999 The lives and values of researchers: Implications for educated citizens in a multicultural society. *Educational Researcher, Vol. 27*(7), 4-17.

Gray, J. A.
1985 Issues in the neuropsychology of anxieties. In A.H. Turner & J.D. Moser (Eds). *Anxiety and the anxiety disorders.* Hillside, NJ: Lawrence Earlbaum.

Jensen, Arthur.
2000 "g: the elephant in the classroom." Invited address, American Psychological Association Divisions 5, 7, 15, 16, 17, 19, 20, 33. American Psychological Association Convention, August 5, 2000.

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Groth-Marnat, Gary.
1999 *Handbook of Psychological* Assessment. New York: John Wiley and Sons.
Hall, C.T.
2001 UCSF Researchers Unscramble Nerve Cell Growth. *San Francisco Chronicle,* A3, March 11. (see also www.stgate.com/science)
Lewis, N.A. & Johnson, D.
2001 Proposal to end law group's role in screening judges: ABA would not be consulted or White House moves to fill vacancies. *New York Times,* March 17, A1.
Neisser, U.
1998 *The Rising Curve: The Long Term Gains in IQ and Related Measures.* Washington, D.C.: American Psychological Association.
Nyborg, H., & Jensen, A.
2001 Occupation and income related to psychometric *g. Intelligence, 29(1),* 45-56.
Oakes, Jeannie.
1993 Untracking evidence is there for the taking. *Educational Leadership,* October, 81-82.
Oakes, Jeannie
1985 *Keeping Track:* How *schools structure inequality.* New Haven, CT: Yale University Press, 1985.
Oakes, Jeannie.
1988 Tracking: Can schools take a different route? *NEA Today,* 1988, *Vol.66(6),* 41-47, January.
Oakes, Jeannie and Guiton, G. Matchmaking:
1995 The dynamics of high schooling tracking decisions. *American Educational Research Journal, Vol.32,* Spring 1995, 3-33.
Oakes, Jeannie.
1995 Normal, technical, and potential dimensions of creating new educational communities. *Yearbook: National Society for the Study of Education, Vol. 94,* pt 1, 1995, 1-15.
Oakes, Jeannie and Well, Amy.
1998 Detracking for high student achievement. *Educational Leadership, Vol.55,* March 1998, 38-41.
Paulesu, E. et al
2001 Dyslexia: Cultural diversity and biological unity. *Science, Vol. 291,*(5511), 2165-2167 (March 16).
Popham, W. James.
2000 "The Mismeasurement of Educational Quality." *The School Administrator,* December *1,* 12-15.
Reschly, D.J.
1998 School Psychology Practices: Is there change? Paper presented at the American Psychological Association, San Francisco, August.
Sattler, Jerome.
1992 *Assessment of Children,* Revised *and Updated Third Edition.* San Diego: Jerome Sattler Publishers.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Scott, Ralph.
1993 Untracking advocates make incredible claims. *Educational Leadership*, October, 79-81.

Scott, Ralph.
1983 *School busing and its effects on academic performance.* Washington, D.C.: U.S. Department of Education. Issue Paper #NIE P 820087. Reviews extensive data on alleged achievement benefits of forced busing and finds no evidence of a linkage between busing and academic gains. Informed of the results of this research, U.S. Department of Education officials jettisoned plans to publish results of the study.

Stein, E, Zou, Y, Pro, M. & Tessier-Lavigne, R.
2001 Binding of DCC by Nitrin to mediate axon guidance independent of adenosure A213 receptor activities. *Science, Vol. 291*, (5510), 1976-1982, (March 9).

Wagner, Mary.
1994 Disabled students in regular classes more likely to fail. AP Report, 1994 as cited in the *Waterloo Courier*, October 3.

Wicks-Nelson, R. & Israel, A.C.
2000 Behavior *Disorders of Children.* Upper Saddle River, New Jersey: Prentice-Hall.

Zernike, K.
2001 "Test results from states reveal gaps in learning." This article discusses evidence of a widening achievement gap between best and worst students, with ethnicity a primary criterion. New York Times, April 9

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Intelligence in Russia

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The Standard Progressive Matrices was standardised in Russia in 1997. The results show that the mean IQ in Russia lies between 96 and 97.6, in relation to a British mean of 100. For practical purposes, the mean IQ in Russia and Britain can be considered the same. The implications of this result are discussed.

Key Words: Intelligence, Russia, Raven Standard Progressive Matrices

Introduction

Cross cultural studies have been made of average intelligence levels in a number of countries. A compilation of these studies for 36 countries and subsequently for a further 6 countries has been made by Lynn (1991, 1997). The results indicate that European peoples typically obtain average IQs in the range between 90-105, East Asian peoples typically obtain average IQs in the range between 100-110, and Sub-Saharan African peoples typically obtain average IQs in the range between 65-80.

Hitherto no data have been available for the intelligence level in Russia. The reason for this is that intelligence testing was prohibited in Russia and throughout the Soviet Union in the 1930s on the grounds that the notion that people differ in intelligence was contrary to Marxist-Leninist doctrine. This prohibition remained in force for a number of post World War 2 decades but was relaxed in the last decade of the twentieth century. With this relaxation the concept of intelligence has been rehabilitated in Russian psychology. Some intelligence testing has been carried out including one normative study of intelligence from which it is possible to calculate the average IQ in Russia. The results are reported below.

Method

In 1997 I.E. Schetkina carried out a standardisation of Raven's Standard Progressive Matrices in the Russian town of

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Briansk, which lies about 200 miles south-west of Moscow. The sample consisted of 432 14 and 15 year olds selected at random from students in 17 schools drawn as a representative sample and stratified by type and location in the town.

Results

The data have been summarised by Raven, Court and Raven (1998) in terms of the raw scores of the 5th, 19th, 25th, 50th, 75th, 90th and 95th percentiles. These raw score percentiles are virtually identical as those of the 15.0 year olds in the British standardisation sample of 1977. In particular, the 50th percentile representing the median score was 47 in both the Russian and the British samples.

The Russian data were collected 20 years after the British data. IQs have been increasing over time in many countries since the 1930s (Flynn, 1998) and some allowance therefore needs to be made for the secular increase of intelligence in Britain over the period 1979-1997 to make a comparison between Russia and Britain for the year 1997. 1979 is the latest year for which normative data for young adolescents in Britain are available, so the rate of increase of the British IQ over the period 1979-1997 is unknown. One solution to this problem to calculate the rate of increase of mean scores on the Progressive Matrices in 1938, the year of the first standardization of the Progressive Matrices, to 1979, the year of the second standardisation, and project it forward to 1997. The rate of increase of the mean IQs of children and young adolescents on the Standard Progressive Matrices in Britain over the period 1938-1979 was approximately 2 IQ points per decade (Lynn and Hampson, 1986). If this rate of gain is projected forward, the British IQ in 1997 would be approximately 104, so in relation to a British IQ of 100 which has generally been used as the standard in cross-cultural comparisons, the mean Russian IQ can be estimated at 96. It may be that the secular rate of gain of intelligence in Britain has been lower in the period 1979-1997 than in the period 1938-1979. It has been found by Teasdale and Owen (2000) that the secular increase of intelligence in Denmark declined over the decade 1988-1998. For a test of abstract reasoning resembling the Progressive Matrices the rate

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of increase was 1.35 IQ points. If this figure is adopted for Britain, the gain over the period 1979-1997 would be 2.43 IQ points, bringing the Russian IQ up to 97.6. The most reasonable conclusion to be drawn is that in relation to a British IQ of 100, the mean IQ in Russia lies between 96 and 97.6. The difference is so small that it cannot be considered of any practical consequence.

Discussion

The results contain three points of interest. First, they confirm the general trend noted in the introduction for European populations to have average IQs in the range of 90 to 105. The average IQ calculated for Russia is almost exactly in the middle of the range. For practical purposes and taking into account sampling and measurement errors, the average IQ in Russia can be regarded as the same as that in Britain.

Second, the Russian sample obtains an IQ in the middle of the European range despite very low living standards compared with those in the Western capitalist economies. In 1995 living standards in Russia measured in terms of Purchasing Power Parity dollars (i.e. the value of the goods and services the people can purchase) were 4,532 in Russia as compared with 26,977 (United States), 19,632 (Australia) and 19,302 (United Kingdom), and were more comparable to those in countries like the Dominican Republic (3,9232), Jamaica (3,801) and Trinidad (6,604) (World Bank, 2001). Low living standards tend to depress intelligence levels because nutrition is less adequate in poor countries and possibly for other reasons (Lynn, 1998; Sigman and Whaley, 1998). Nevertheless, the low living standards have apparently had relatively little adverse impact on intelligence in Russia. The implication is that the racial identity of the population is a far more important determinant of the intelligence level of the population than environmental factors like nutrition determined by living standards.

Third, the Russians have a much higher average IQ than blacks in the United States, despite having much lower living standards. Throughout the period from 1967 to 1990 the average earnings of blacks in the United States were approximately 60 per cent of whites (Darity and Myers, 1998).

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Thus, the average per capita income of blacks in 1995 was approximately $16,000, more than three times greater than the average per capita income of $4,532 in Russia. This provides further evidence that standards of living have relatively little impact on intelligence compared with the racial identity of the population and the low IQs of blacks in the United States cannot be explained in terms of their lower average earnings than whites.

References

Darity, W.A. and Myers, S.L.
1998 *Persistent Disparity.* Cheltenham, UK: Elgar.

Flynn, J.R.
1998 IQ gains over time: towards finding the causes. In U. Neisser (Ed) *The Rising Curve.* Washington, D.C.: American Psychological Association.

Lynn, R.
1991 Race differences in intelligence: A global perspective, *Mankind Quarterly*, 31, 3, 255-296.

Lynn, R.
1997 Geographical Variation in Intelligence, in H. Nyborg (Ed.) *The Scientific Study of Human Nature,* Oxford: Pergamon.

Lynn, R.
1998 In support of nutrition theory. In U. Neisser (Ed.) *The Rising Curve.* Washington, DC: American Psychological Association.

Lynn, R and Hampson, S.L.
1986 The rise of national intelligence: evidence from Britain, Japan and the USA. *Personality and Individual Differences,* 7, 23-332.

Raven, J., Raven, J.C. and Court, J.H.
1998 *Standard* Progressive *Matrices.* Oxford: Oxford Psychologists Press.

Sigman, M. and Whaley, S.E.
1998 The role of nutrition in the development of intelligence. In U. Neisser (Ed.), *The Rising Curve.* Washington, DC: American Psychological Association.

Teasdale, T.W. and Owen, D.R.
2000 Forty-year secular trends in cognitive abilities. *Intelligence,* 28, 115-120.

World Bank
2001 *World* Development *Report.* New York: Oxford.

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Genital Mutilation among Female Adolescents Resident in Italy

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The author discusses the arrival in Italy of Female Genital Mutilation as practiced among various immigrant African populations, notably Somalis, and the absence of any legislation specifically prohibiting this practice in Italy.

Key Words: Female Genital Mutilation, FGM, infibulation, clitoridectomy, African immigrants, Italy

As defined by the World Health Organisation (WHO) Female Genital Mutilation (FGM) comprises "all procedures that involve partial or total removal of the female external genitalia and/or injury to the female genital organs for cultural or any other non-therapeutic reasons" (WHO, 1996: pg. 6).

In fact there are various forms of Female Genital FGM, classified according to their severity from the least to the most destructive forms. However, not all authors agree about how to distinguish them. The WHO recognizes four different types: First, the excision of the prepuce with or without excision of part or all of the clitoris; Second, the excision of the prepuce and clitoris together with partial or total excision of the labia minora; Third, the excision of part or all of the external genitalia and stitching/narrowing of the vaginal opening (infibulation); Fourth, the complete removal of the clitoris and labia minora, together with the inner surface of the labia majora. The two sides of the vulva are then stitched together with thorns or silk or catgut sutures, so that when the skin of the remaining labia majora heals, a bridge of scar tissue forms over

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the vagina. A small opening is preserved, by the insertion of a foreign body, to allow the passage of urine and menstrual blood. The fourth type is unclassified.

The mutilated woman does not generally know what type of operation she underwent as a girl, only that she is "open" or "closed" (Grassivaro Gallo, 1986).

FGM is a well-known traditional practice, especially in the area of Africa around the equator. It is carried out throughout the continent from West to East, from the Gulf of Guinea to the Horn of Africa. Within this vast region there are two infibulation enclaves; one is in the east and includes Somalia, Sudan, parts of Egypt, Kenya and Ethiopia. The other is a smaller enclave to the west, comprising Mali and northern Nigeria (Hosken, 1994).

The various types of FGM are carried out in different ways from country to country, but they remain an ethnic characteristic rather than a nationwide custom. In some countries, in Somalia for example, infibulation is never carried out at birth but always before menarche (around 5-10 years of age). It is often the little girl herself who becomes mindful of the matter together with her family, requesting the operation herself. Both at school and at play she would be an object of derision and would be immediately emarginated if she did not comply with this social obligation.

The small girls perceive the operation as a test of their adulthood and their worthiness of taking on the responsibility of marrying and forming a family with a Somalian man. The celebration that follows the operation is organised by the girl's relatives and has serves as a rite of passage to mark the child's admission as a mature person to the extended family and friends. She receives gifts and is praised for her courage in this test. She enjoys more respect from friends and neighbours and usually, from this moment on, starts to dress as an adult. This act gives the whole family an enhanced social dignity (Dualeh R.H.A.,1982; Grassivaro Gallo, 1986; Grassivaro Gallo & Viviani, 1988; Hassan S.S., 1996).

Even though the test is very painful, the child is basically happy for having carried out a social duty. This was established by an analysis carried out on graphic tests administered to young Somalian girls (Grassivaro Gallo & Moro Boscolo, 1984/85).

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This, in short, is the situation in Africa. However, in recent times migrants from Africa into Europe have brought this cultural practice into the various European countries which have admitted them, and many not only continue this custom but even going so far as to request that the operation from the health structures of their adopted country (Tanganelli, 1988). This is what has happened in Italy where emigration from East Africa has become very intense as a result of the conflicts in Somalia in 1990.

Western doctors are faced with a moral dilemma and generally refuse to conduct the operation, thus causing the parents or the family of the girl in question to revert to clandestine surgical operations. In this way the underground market, based on a conspiracy of silence, is becoming more and more widespread and commercial transactions are negotiated involving several million lira for each operation.

In these circumstances it is not difficult to imagine extreme cases, even the death of a child, with the relative legal complications and consequences (Smith, 1995:p.153). In Italy there are no specific laws in merit, even if – according to article 5 of the Civil Code and article 583, c2, p3 of the Penal Code – FGM is considered illicit, both for children and women.

The Italian population has become aware of the phenomenon of FGM operations conducted in Italy via newspapers and the mass media, which periodically call attention to instances of FGM (Magdi Allan, 1996) but which are often accompanied by misleading interpretations and inaccurate commentary (Gibelli, 1993).

Bearing all this in mind, in this study it is our intention to indicate the presence of sexually mutilated girls in Italy as a result of immigration at a time when our population is rapidly becoming multi-ethnic and multi-cultural. One of the reasons for doing this is to highlight the seriousness of what is happening and to provoke he relevant health authorities to become concretely aware of the situation with a view to protecting young girls at risk.

Subjects and Methodology

The first epidemiological survey in Italy of obstetricians, to

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highlight their impact with FGM in African immigrants was carried out in 1993 (Grassivaro Gallo et al., 1995).

A total of 327 medical staff were surveyed, most of whom were interviewed at the National Conference in Venice and at the Sexology Conference in Modena by means of a questionnaire complimented, when the occasion arose, by an in-depth interview. In particular, several items in the questionnaire asked those obstetricians who had had excised women as patients (47% of the total) for information regarding any mutilated girls they had examined professionally. The obstetricians who answered positively were 18 in number (5.5%) and they refer data relative to 42 mutilated girls. The replies to the items were elaborated using quantitative methods.

During the interviews, those obstetricians who were most interested in collaborating also gave a further in-depth interview. In this specific case it was through these in-depth interviews that we began to note the first descriptions of mutilations carried out on young girls. This gave us the incentive to continue our research on other, new cases collected in quite a different way from the preceding ones.

To the initial data given by the obstetricians we added material collected from various sources of information, for the most part doctors, paramedics, cultural mediators, but also primary school teachers. This material refers to 30 cases in all, involving 71 sexually mutilated young girls. These have been grouped together according to the FGM information given to us, i.e. :

- - 7 cases refer to requests made to medical staff for an excisory operation which, in 2 cases, was refused;
- - 8 cases refer to the presence and/or activity of traditional midwives (or *mammana*);
- - 5 cases refer to mutilation carried out on immigrant children but not in Italy;
- - 10 cases supply other, various information which is not easily grouped together.

These surveys have been analysed by means of a qualitative method which focused on several of the most relevant topics (LIS et al., 1995).

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In this study we refer in all to :

A) data relative to 42 mutilated subjects seen in Italy by 18 obstetricians interviewed in 1993;

B) the description of 30 other cases, collected in quite a different way between 1993 and 1997 and which refer to another 71 young mutilated girls.

Results

With all the quantitative and qualitative information at our disposal we have been able to draw a general outline of the presence of FGMEVOL in various Italian regions.

Furthermore we have also drawn up the following results: A) The data, mostly of the quantitative type, collected from the replies to the 18 questionnaires, refer to both the obstetricians themselves and to their patients.

The medical staff were both male and female - 13 and 5 respectively; they work in various Italian regions from north to south, including Sicily, even if most of the mutilated children had been examined in a hospital in Milan.

The number of years the obstetricians in question had been working varied from 0 to 20; the number of excised women seen in all was estimated at "not less than 271".

The 42 evolutive age subjects, can be characterised as follows; they are between 2 and 16 years of age; they are all of African origin with the exception of 2 subjects: one Italian from La Spezia and the other from Sidney, Australia.

The pathological reports concerning these patients as given by the obstetricians refer to: inflammatory reactions and vulvo-vaginitis consequent to infibulation; infections resulting from clitoridectomy; hormonal disorders due to infibulation; fear of mutilation in subjects at risk.

We would like to point out that it was possible to highlight more than one topic from the single cases analysed.

Discussion and Conclusions

We would, first of all, like to make two general comments that explain our opinion on FGMEVOL.

From cultural information already given, it can be seen that if mutilation is put in its context it cannot be considered an act of violence on a minor (in the meaning that is given to the term

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in the western world) but, on the contrary, is a sign of the whole family's care of, and attention to, the girl child. In fact, the local belief is that a woman who has not been excised was a child who had nobody to take care of her.

Secondly, in her homeland, the mutilated child has the psychological support of her own community, which makes her feel grown-up and important for the very test that she has passed. In immigrant families excision is more an element causing marginalisation and will further slow down, or even impede, her settling in among non-African children of the same age. On the basis of this fact various psychological disturbances arise and, as we have seen, they are not less important than the more well-known physical ones.

Having said this, we consider that while it would be suitable to let each African country choose whether to keep or put a stop to this custom and maybe even decide the most suitable instruments for its eradication, in the developed countries it must be the Western authorities who take charge of controlling and preventing mutilation on young immigrant women, using the most suitable means, to educate the immigrants against such practices as alien to the societies in which they now live, and if necessary even to punish parents who organise this type of operation for their daughters and to prevents doctors or medical staff from carrying out this kind of operation in Western societies.

To comment on the results of our research, first of all we repute that the analysis carried out on Italian obstetricians can also be considered valid in this case as and when it supplies information on children reaching the age of puberty. This is because even though the children are usually taken to a paediatrician first, they are then usually referred to an obstetrician.

To back up this idea, we can quote from surveys similar to our own, carried out in Switzerland (Beguin-Stockli, 1995) where a total of 82 excised African women were examined by obstetricians. A further enquiry made to paediatricians brought to light only another two young girls who had been seen by the latter alone.

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We know of no other data from other epidemiological surveys carried out on girls attaining puberty..

Regarding the number of young, mutilated subjects living in Italy, we may start with the indirect estimation on data regarding immigrant women supplied by the Ministry of the Interior in 1994 which estimates that "not less than 28,000" immigrant African women have undergone FGM (Grassivaro Gallo et al., 1995); the epidemiological survey carried out on 327 obstetricians in 1993 highlighted a number of "not less than 1950 women" (7%), i.e. one woman out of fifteen has needed to turn to a specialist. In particular, excised patients in the evolutive age make up approximately 15% of the total number of excised African women (271) seen by 18 of these obstetricians. To generalise, it can roughly be said that there could be "at least 4/5,000" young excised girls in Italy (15% of 28,000).

However, we cannot completely ignore the number of medical staff who denied having any mutilated girls among their patients. If we also consider these (327-18), it can be seen that the 42 girls are only 2.2% (of 1950 women); that is, out of a total of 28,000 women we can calculate a lower number equal to 900/1,000 mutilated girls.

Therefore, *the number of girls risking mutilation in Italy altogether could be between 1,000 and 5,000 in number.* Personally we would tend to think that the higher number is more probable than the lower one considering the fact that mutilated children/girls generally only present consequences immediately and/or in the medium term, that is, they have fewer reasons to ask for a specialist's visit than a mutilated woman. In fact, the latter are more likely to suffer from long-term consequences among which we can name difficulty in matrimonial relationships, in pregnancy and giving birth, as well as deinfibulation, etc.

Our data, therefore, is in stark contrast with the declaration issued by the Ministero Della Sanita (1988) which denied that any part of the population resident in Italy faced female genital mutilation. Furthermore, our data shows that we can now formulate something more than mere supposition regarding a fact that was officially denied in 1988 (AA VV, 12/1/1988) but

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which we had already questioned in 1995 (Grassivaro Gallo et al.): i.e. whether *FGM was also carried out in medical institutions in Italy.* (In England FGM was carried out in private clinics in the eighties - Smith, 1995:p. 175). Obviously, given the illegality of the practice, which is normally carried out clandestinely (Tab.20, pg.74 Hassan S.S., 1996), it would in fact be very difficult to be able to supply sure and more direct proof which could confirm our doubts about the validity of the statement by the Ministero della Sanita..

We shall now attempt to reply to another question: *who could be performing such mutilations in our country ?* Our comments on this point are again based on indirect data. Our investigation brought forth two clues: first, the involvement of *medical professionals* from cases of immediate complications of mutilation in young girls examined at the casualty departments of various hospitals, where the mutilations were technically attributed to professionals. Secondly from requests put forward by parents and relatives to African medical staff working in our hospitals who refused to operate. Moreover there is evidence that *traditional midwives* amongst the immigrant African population conduct these mutilations in various Italian regions.

In the former case, evidently the technician who operates have experience of Italian medical education (e.g. have graduated in Italy or at least have a paramedic diploma which allows them a certain familiarity with the profession and with surgical instruments), but he or she must also be familiar with the traditions of the excisory culture, otherwise the operation could be a failure. The only people who have both these characteristics are *mixed-culture doctors or paramedics (African/Western)* who very often have graduated or are currently working in Italy.

Our survey identified at least three, but there are certainly a higher number, in our country, who conduct FGM. We managed to discover, more or less, the financial background to these operations which can oscillate from one to several million lira according to where (and therefore how) they are carried out, whether at home by the *mammana* or traditional midwives, or a hygienically safer place by a "doctor".

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In support of our hypothesis, we refer to the contents of an interview which recently appeared in the national newspaper *La Repubblica* (AA VV, 1/4/1997) given by a lawyer from Rome who is well-known for being professionally interested in the problems of African immigrants. In this interview he confirmed that young girls are operated on in Italy, not only at home but increasingly often in unspecialised private clinics, most often by Italo-Somalian doctors who have qualified in Italy. These are exactly the same conclusions that we have come to!

The data also demonstrates that *these little patients have already begun to make demands* (with their immediate and medium term complications) *on the health institutions*, requesting different forms of assistance as well as emergency aid. We can easily forecast that in coming years they will become young women who will need special health assistance, especially when they marry (deinfibulation) and when they give birth (specific episiotomies, etc.) (Lightfoot-Klein & Shaw, 1991). In Switzerland too, an increase in mutilated patients who will require deinfibulation in particular has also been forecast (Carbo Budri, 1995).

In addition to our data, we would also like to recall other cases collected from bibliography as examples:

- in Florence, in the Infective Illnesses Clinic of the Paediatrics Department, a case of urinary tract infection in an infibulated 13 year old was treated (Franchini et al., 1993);
- in Rome. several cases of Somalian girls with FGM have been reported. Among these, one 14 year old adolescent was admitted hospital with an evident crisis of psychomotory agitation (Iariaet al., 1995).

The latter was a clear case of a psychiatric pathology, but we must not forget the characteristics of an excision which is carried out in an adoptive country, we could say "out of context". Generally it is characterised by an environment without any cultural significance or explanations which justify it. To this we can add the absence of friends and relatives of the same age who are undergoing, or who have undergone, the same operation. This is all then put in a worse light by the clandestine and hurried way in which everything is organised.

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Therefore it can be expected that immigrant girls and children suffer from the psychological consequences of the act, resulting in behavioural changes that can occur in the small victims. We cannot even exclude that they can suffer from traumatic shock!

To say nothing of the fear of mutilation in subjects at risk; we would like to make it known that the cases we have quoted above, collected in Italy, have been the subject of requests for political asylum to young immigrant women abroad (Smith,1995); this has happened in France - p.154; as well as in Canada - p.148; and in the USA - p. 179.

These worrying psychological aspects highlight the now inevitable need to inform and update primary school staff on the phenomenon of excision since these could be the first people young girls in difficulty would turn to.

One very new and up-to-the-minute issue for Italy concerns the official statements made out to the magistrates implicating certain parents who have had sexual mutilations carried out on their daughters. *In Italy there is no specific legislation against these acts,* but only laws that prohibit amputations in general. These laws could be extended to cover FGM, but it is necessary to consider more specific legislature, even though these alone may not sufficient to provide social action which will protect all subjects at risk (WHO, 1996).

The two cases in Italy of parents being reported to the magistrates to which we referred in the preceding paragraph had not yet been concluded at the time this article was prepared. ago. If we look at what is happening elsewhere in Europe, we note that France has established a "Commission pour l'Abolition des Mutilations Sexuelles (CAMS)", which numbers among its supporters people like Linda Weil-Curiel, a jurist who, in 1994, was already at her 18th legal defence of genital mutilation on children or trials accusing traditional midwives of circumcision, apprehended while they were operating (personal communication, 1994). There are also legislative instruments, such as Art. 312 of the Penal Code (which concerns acts of violence on citizens under 15 years of age) which makes it possible for legal action to be taken against parents and circumcisers (AA VV, 1984).

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Italy, is very behind in this matter because, apart from the absence of any specific legislation, as we have already pointed out, there are only a few very generalized declarations of intent for the future given by political authorities on various levels (AA VV, 1/4/1997). Even Italian medical staff, apart from a few isolated cases (Benassi et al., 1993 -a; -b; -c; Alamin M.M.,1992), do not seem to be fully aware of the seriousness of this problem.

To conclude, we would like to say a few words concerning the mutilations carried out on Italian, non-African, subjects. In fact, the rarity of these would make them appear to be exceptions to which we should not give too much importance, but in the not so distant future this phenomenon could well become more important. To this end, we should not forget that in an up-to-date country like the USA, newborn males continue to be circumcised at birth (60% in urban populations), without any specific therapeutic motives.. The prevalence of male circumcision in the USA is a mystery which has not been satisfactorily explained (Hodges, 1997), and is something that should be borne in mind when we seek to evaluate the potential significance of the introduction of FGM into Italy and Europe by African immigrants.

Summary

In this work we wish to point out that, in Italy too, there is the worrying presence of the excisory culture in young girls due to the immigration phenomenon. According to an indirect estimation there could be 4/5,OOO thousand of these young girls in our territory.

An epidemiological study of FGM was carried out on obstetricians and gynaecologists at the National SIGO Conference in Venice and at the Sexology Conference in Modena in 1993. Out of a total of 327 obstetricians interviewed, 47% declared that they had examined sexually mutilated African patients. Eighteen of these 157 obstetricians had examined, out of 271 women, not less than 42 patients in the evolutive age (from 2 to 16 years), mostly from East African countries and resident in various Italian regions from north to south, Sicily included.

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An in-depth discussion, the aim of which was to single out the consequences and complications of mutilation on young girls in Italy, brought to light several cases of children hospitalised (in Milan, Padua, Florence and Rome) due to the immediate complications of infibulation; these subjects had been infibulated in Italy probably by doctors/paramedics of mixed afro/European culture.

Other children, admitted to hospital in Florence, experienced medium-term complications; one young girl in a serious state of psychomotory agitation was treated in Rome.

As far as the means of mutilation are concerned, we also singled out cases of adolescents operated on at home by traditional birth attendants (in Florence, Trieste, Biella and Rome).

Other subjects had been sent by their parents to East African countries, such as Gibuti or to Kenya, to be infibulated or excised.

The results presented are in stark contrast with several official declarations issued by the Ministry of Health.

We would like to underline the fact that FGM, substantially a violation of the body's integrity, not only leads to the well-known medical complications, but can also be the basis for specific psychological pathologies in the country of adoption.

References

AA VV
1984 Les mutilations du sexe des femmes aujourd'hui en France. Ed. Tierce, Paris.

AA VV
1988 Roma, pioggia di smentite sugli interventi USL. "Nei nostri ospedali non abbiamo mai fatto infibulazioni". La Repubblica, pag. 16, 12/1/1988.

AA VV
1997 Il ministro Livia Turco "Pronta ad inserire questo dramma nella nuova legge sugli immigrati", La Repubblica, pag.19: 1/4/1997.

Alamin Munira Mohamed
1992 Infibulazione e donne immigrate. "Confronti", 4:p.19, 1992.

Beguin-Stockli
1995 D. Gynecologists faced with FGM. A report on the situation of mutilated African women seeking Swiss public health care, p:49-57. In: Grassivaro Gallo P. & Viviani F. (Eds) FGM: a public health issue also in Italy. UNIPRESS, Padua.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Benassi L., Gibelli B., Sacchini C.-a,
1993 La situazione ostetrica in Somalia. Bollettino della Soc. Ital. di Ginec ed Ostetr., 2:22-24, 1993.
Benassi L., Gibelli B.M., Sacchini C., Virdis R.-b
1993 Negazione violenta della sessualità femminile: le mutilazioni genitali nelle giovani Somale. 4° Congresso Nazionale della Soc. Ital. di Ginec. dell'Infanzia e dell'Adolescenza, Florence 24-27/2/1993.
Benassi L., Gibelli B.M., Sacchini C.
1993 Virdis R.-c Una tradizione di violenza la circoncisione genitale nelle giovani Somale. 4° Conferenza Europea sul Bambino Maltrattato per Costruire Strategie Europee in Tema di Tutela del Bambino. 28-31/3/1993. Padua-Abano Terme.
Carbo Budri M.
1995 Le sexe effacé: Punir o prévenir les mutilations sexuelles? Mémoires du Diplome de L'I.E.S.- Service Sociale, Génève.
Dualeh Raqiya Haji Abdalla
1982 Sisters in affliction. Circumcision and infibulation of women in Africa. Zed Press, London.
Franchini F., Calabri G., Brizzi I., Casini T., Bernini G.
1993 La pratica della infibulazione: quadro clinico in una adolescente extra-comunitaria. Ped. Med. Chir., 15:p.619.
Gibelli B.
1993 Una terra di crudeltà per donne e bambine. La Repubblica, p.7, 3/1/1993.
Grassivaro Gallo P. & Moro Boscolo E.
1984/85 Female circumcision in the graphic reproduction of a group of Somali girls. Cultural aspects and their psychological experiences. Psychopathologie Africaine, 20:165-190.
Grassivaro Gallo P.
1986 La circoncisione femminile in Somalia. Una ricerca sul campo. F. Angeli Ed., Milan.
Grassivaro Gallo P. & Viviani F.
1988 Female circumcision in Somalia. The Mankind Quarterly, 29:165-180.
Grassivaro Gallo P. & Livio M.
1992 Les mutilations genitales feminines des Africaines en Italie. Rivista di Antropologia, 70: 175-183.
Grassivaro Gallo P., Livio M. & Viviani F.
1995 Survey on Italian obstetricians and gynaecologists: FGM in African immigrants, pp. 11-23. In: Grassivaro Gallo P. & Viviani F. (Eds.) FGM: a public health issue also in Italy. UNIPRESS, Padua.
Hassan Sirad Salad
1996 Sette gocce di sangue. Due donne Somale. La Luna Ed., Palermo.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Hodges F.
1997 A short history of the istitutionalization of involuntary sexual mutilation in the United States. pp.17-40. In: Denniston G.C. & Milos M.F. Eds. Sexual mutilations. A human tragedy. Plenum Press, New York & London.

Hosken F.P.
1994 The Hosken Report. Genital and sexual mutilation of females. 4th. rev. Ed, WIN NEWS, MA (USA).

Iaria A., Scalise M.G.
1995 Hassan G., Sheikh Q., Several accounts of female African adolescents, pp. 24-30. In: Grassivaro Gallo P. & Viviani F. (Eds.) FGM: a public health issue also in Italy, UNIPRESS, Padua.

Lightfoot-Klein H. & Shaw E.
1991 Special need of ritually circumcised women patients. J. Obstetricians. Gynaec. and Neonatal Nursing, 20:102-107.

Lisa., De Zordo M.R., Venuti P.
1995 Il colloquio come strumento psicologico. 2nd Ed. riveduta ed ampliata, Giunti, Florence.

Magdi Allan
1996 Il pianto di Hudan. A 6 anni il trauma del sesso mutilato. La Repubblica, pag.12, 9/7/1996.

Ministero Della Sanita
1988 RispostaOggetto: interrogazione n.4/00879, del sen. G. Berlinguer. Senato della Repubblica. Gabinetto Ufficio Rapporti Parlamento: n. 100/632/1395.

Smith J.
1995 Visions and discussions on genital mutilation on girls. An international survey (original Dutch Ed.), Amsterdam, 1992. P. Longbottom (English Ed.), Defence for Children International Afdeling Nederland, Leiden.

Tangenelli G.
1988 Sono entrati all'ULS i riti tribali Africani, pag. 15, Il Corriere della Sera, 12/1/1988.

WHO
1996 Female Genital Mutilation: Report of a WHO Technical Working Group (Geneva, 17-19 july1995), Geneva.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Application of Nonpregnant and Pregnant Women's Anthropometric Data in Medicine

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The article presents the results of the research on nonpregnant and pregnant women's body structure that was begun at Tartu University as early as in 1974. The sample includes 18–22-year-old nonpregnant women (n=678) and 18–29-year-old pregnant women (primipara, n=3919). By means of multivariate statistical analysis we found that nonpregnant woman's body as a whole is a linear well-correlated system. The leading measurements are height and weight which account for 50% of the variability of all the other measurements. Variations in body height-weight sizes lead to systematic changes in length, breadth and depth measurements, circumferences and body proportions. Comparative changes of body proportions in the general contingent and in the groups of purely pycnic and leptosomic women are based on the corresponding values of their body height and weight.

A well-correlated system of body measurements can be demonstrated during pregnancy as well, when body height and weight account for 45% of the variability of the other measurements. At various gestational ages body weight can be predicted precisely enough by abdominal measurements (R=0.9535).

Combining the 19 simple indices formed from the variables that do not change during pregnancy we formed the pregnant woman's summary body build index. Using this index and gestational age it was possible to predict with sufficient precision the values for every anthropometric characteristic measured (r=0.54–0.91). From the clinical anthropometric characteristics of the parturients we formed the complex body build index, and using this index and body height we created a two-dimensional classification (5 x 5 SD classes) which enabled us to analyse the correlations between labour index and the newborn's weight.

Key Words: anthropometric, nonpregnant, pregnant, parturient, body build index, newborn's weight, health

Health, physical development and body build of nonpregnant and pregnant women are most essential for maintaining and strengthening the health and vitality of every

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nation. Scientific investigation, therapeutic and preventive measures in this area should be integrated, taking into account the results of anthropometric, physiological, clinical and other studies (Heath, Carter 1966; Frankenberg 1980; Noppa, Anderson, Bengtson, Bruce, Isakson 1980; Wienker 1984; Drobny 1986; Maiste 1992; Physical status. 1995).

In order to analyse simultaneously the data of several disciplines, multivariate classifications are needed which would present models of the body as a whole.

The above-mentioned problems also concern the studies of pregnant women and parturients. It is a well-known fact that the course of pregnancy and parturition and the health of the newborn are closely connected with the individual dimensions of the mother's body, like height, weight, external and internal pelvic measurements, which influence the course of labour (Solth 1960; Davydov 1967; Cherepanov 1971; Matveyev 1973; Kalganova 1978; Calandra, Abell and Beischer 1981; Haste, Anderson, Brooke, Blard, Peacock 1991; Riive, Kaarma, Tiit 1992; Saluste 1992; Hickey, Cliver, McNeal, Hoffmann, Goldenberg 1996; Lederman, Steven, Heymsfield, Wang, Thornton, Pierson 1997; Clark, Atton, Law, Shiell, Godfrey, Banker 1998). But there are no methods for estimating the integrated influence of all these separate characteristics.

Taking into account the above-mentioned, the present article will introduce the reader to the possibilities of classification offered by us. These are based on our long-term experience in studying the body structure of the corresponding contingents which started at Tartu Women's Clinic as early as in 1974 (Kaarma 1980, 1981, 1983, 1991, 1995a,b, Kaarma, Raud 1997; Kaarma, Salundi, Koskel, 1997; Kaarma, Saluste, Thetloff, Peterson, Riive, Salundi, Veldre, Raud, 1998).

Material and methods

The study of body build structure was carried out on healthy nonpregnant and pregnant women with normal physical development and normal menstrual cycle, and on newborns born of normal delivery.

The nonpregnant women (n=670) were students of the University of Tartu aged 18–22 who had not yet born children.

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The pregnant women (n=3919) were aged 18–29, delivered their first child, the course of their pregnancy having been normal, and all of them delivered a live infant without surgical intervention. The pregnant women were divided into two groups: in one group (n=3264) the clinical anthropometric data were measured at the beginning and at the end of pregnancy and before parturition, in the other group (n=655) specific anthropometric measurements were made at different gestational ages.

The basic anthropometric measurements (37 body measurements and 10 skinfolds) were carried out on 670 nonpregnant women and on 350 pregnant women out of 655. For the rest of the pregnant women of the second group (n=305) the size and shape of the external abdomen were measured according to our original program during the 38th-40th weeks of pregnancy.

In principle, the program of anthropometric measurements was based on the generally known method of R. Martin (Martin, 1928).

The data collected were processed at the Computing Centre of the University of Tartu with Prof. E.-M. Tiit acting as a consultant.

Results

1. *Research results of the body structure of nonpregnant women*

By means of multivariate statistical analysis we found that the woman's body as a whole is a linearly well-correlated system. The leading measurements are height and weight, which account for 50% of the variability of all the other measurements, while individual variability makes up the other 50%. Factor analysis showed that there are no other body measurements besides weight and height that can give a reliable description of the general build of a woman's body.

Next we studied the mutual connections between body measurements in bivariate pairs of variables: height — weight, height — all the other variables, weight — all the other variables. There was a notable principle of relative non-correspondence in all pairs of variables. We found that in short women or in light women the other measurements of the body were on an average somewhat bigger than they ought to have been in the case of a perfect correspondence between height

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and weight, and vice versa — in tall women or in heavy women the values of other characteristics were relatively smaller than in the case of full correspondence.

The relative non-correspondence which appeared in such above-mentioned pairs of variables increases in the direction of the extreme variants and is probably the basis for the formation of extreme types — pycnics and leptosomes.

Next, it would be necessary to study how the other body characteristics change when height and weight vary simultaneously. For this a statistical model of height-weight classes was compiled (both height and weight were divided into five equal classes within the range of ±2.5 SD; 25 classes in total), for which the significance of the differences between the averages of the remaining variables was established with the help of the Scheffe test (see Fig. 1).

Our investigations proved that in all the height classes an increase in body weight leads to a one-directional increase in the breadth and depth measurements and circumferences. On the contrary, in all weight classes a gradual increase in height leads to an increase in length measurements and to a decrease in breadth and depth measurements and circumferences.

The 124 simple indices which were formed in order to study proportions also showed systematic changes in the relations between height, breadth and depth measurements and circumferences in different classes of height and weight.

Body composition investigations also showed significant changes in height-weight classes. So in all height classes an increase in body weight was accompanied by an increase in the total amount of fat and in the percentage of subcutaneous fat in body weight, and a decrease in body density.

On the contrary, in all the weight classes, a gradual increase in height caused an increase in body density and a decrease in the total amount of fat and in the percentage of subcutaneous fat tissue in body weight.

After studying the regular changes of single measurements and proportions in the general contingent of women, we investigated the principal peculiarities in the groups of purely pycnic and leptosomic women (Kretschmer, 1961). For this purpose we analysed the anthropometric data of 32 pycnic and

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39 leptosomic women from the general contingent who could easily be typified somatoscopically as pure types before their anthropometric examination. While comparing the average data of these groups in single measurements as well as in 124 indices, we noticed statistically significant differences according to which we could state that the changes in pycnics' body structure resemble the tendency that occurs in the general contingent if body weight gradually increases in one and the same class of height. On the contrary, the peculiarities of leptosomic women resemble the changes in the general contingent if body height gradually increases in one and the same weight class.

The analogy found in body proportions between the general contingent on the one hand, and the groups of pycnic and leptosomic women on the other hand, gave us reason to assume that the body structure of pycnic and leptosomic women is also based on different relations between body height and weight. This hypothesis was checked once again by bivariate statistical analysis. Randomly chosen indices (n=80) were correlated on the one hand with Rohrer's index and on the other hand with the characteristics of body build type. We could notice a surprising similarity in the character and strength of the correlation which gave us reason to suppose that the changes in body proportions in pure types are also connected with Rohrer's index. Consequently, the pycnic and leptosomic women are not people of a special kind, but the structure of their anthropometric features is based on the relations between weight and height just as in the general contingent.

Next we checked whether the differences existing between the groups of pycnic and leptosomic women could also be used for the typification of the general contingent. To do so, we selected from among 124 indices those 13 whose values differed most widely in purely pycnic and leptosomic women. Using the discriminant functions, it was possible to divide all the women of the general contingent into groups similar to such that could be termed to be of so-called pycnomorphious, average and leptomorphious constitution. In these three groups, formed from the general contingent, it was possible to demonstrate all these essential differences that were also revealed in the groups of pure types — of pycnic and leptosomic women.

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These findings lead to the conclusion that no discrete groups of separate somatotypes exist, but the system of a woman's body measurements reveals certain general tendencies, which can also lead to the formation of extreme variants — the pure pycnic and leptosomic types as Kretschmer called them. The leading characteristics here are body height and weight.

2. *Research results of the body structure of pregnant women*

Correlation analysis of clinical anthropometric data and special anthropometric data of pregnant women showed that the well-correlated system of body measurements is preserved during pregnancy as well. As before, the system's leading characteristics are height and weight. Factor analysis also showed that 45% of all the variability of characteristics can be described by height and weight. No other body characteristics exist beside them, which could describe the remaining characteristics to the same extent. The remaining factors describe only some local connections between individual characteristics.

We managed to prove that the variables that change greatly during pregnancy — body weight and abdominal measurements — preserve strong mutual correlations. This is demonstrated by the fact that at various gestational ages it is possible to predict body weight rather precisely (R=0.9535) by abdominal measurements.

While studying the proportions of pregnant women, the characteristics that do not change during pregnancy are of great help. From 19 simple indices we could form the *pregnant woman's summary body build index.* Analogously to the height-weight classification of nonpregnant women, we formed a bivariate classification (3 x 3 or 5 x 5 SD classes) from this index and body height.

We could prove that the basic structure of the body build system is preserved during pregnancy in the following way: using body height, weight, pregnant woman's summary body build index and gestational age as independent variables, it was possible to predict with sufficient precision (r=0.54–0.91) the values of every anthropometric characteristic measured.

It is generally known that the evaluation of the shape and size of pregnant women's external abdomen at the end of pregnancy also poses a problem. By studying 305 first-time

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parturients at the end of pregnancy (37th–40th weeks), using our original method for measuring pregnant women's external abdomen and routine body measurements (80 characteristics in total), we were surprised to find that all women's external abdominal measurements could well be systematised in 3 x 3 SD classes of mother's weight and newborn's weight.

The clinical anthropometric data of parturients which can be found in case histories can also be successfully used in order to assess the course of parturition in women with different types of body build.

As all the body parameters form a proportional system, we could form from all the body parameters found in case histories *the parturient's complex body build index.* For this purpose we multiplied the following simple indices:

$$\frac{\text{weight}}{(\text{height?})} \times \frac{\text{wrist circumf}}{\text{height}} \times \frac{\text{d. spinarum}}{\text{height}} \times \frac{\text{d. cristarum}}{\text{height}} \times \frac{\text{d. trochanter.}}{\text{height}} \times \frac{\text{conj. externa}}{\text{height}} \times 10$$

Using this index and body height we created a new bivariate classification (5 x 5 SD classes) for the 2,632 parturients investigated. Another new index — *labour index* — was formed. This was calculated for each parturient by summing all deviations from the normal course of labour in points. In our study the variability of this parameter was from 0 to 7 points, its mean value being 1.79.

By the correlation between the mean labour index and the mean weight of the newborn in each class it is possible to assess how parturients of various body build deliver (see Table 1).

Discussion

The results presented here on body structure investigation of nonpregnant and pregnant women provide new information for anthropologists and physicians of various specialities, including obstetricians.

Unfortunately the literature available for us does not contain analogous classifications. Therefore we cannot directly compare our results with those of the other authors, and we shall only comment on the main results of our investigation.

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According to our data, body build is such a regular system that anthropometric parameters can be systematised in very different ways.

First, the anthropometric material of nonpregnant and pregnant women can be systematised into SD classes of weight and height where the significance of changes in the characteristics studied can be assessed by Scheffe-test.

If it is necessary to study clinical data from the aspect of body build, and weight and height are the only body build characteristics available, it is sufficient if we use only them.

However, it results from our material that always a bivariate base classification should be used for any kind of systematisation of clinical, physiological or other data according to body build. One of the factors can be either weight or an index derived from weight and height (body mass index, Rohrer index), but the other factor must always be height in isolation as it represents the size of the whole skeleton, the length and thickness of bones.

One index alone can never characterise the body as a whole. For example, women with an equal body build index can belong either to the group of pycnic women or to the group of tall and corpulent women. Although the body mass index describes corpulence, it does not reveal the rank of body size, which is most essential.

The regularities found in the body structure of pregnant women showed that research into the body build factor is a promising trend in obstetrics.

If we want to compare the body build of pregnant women and changes in physiological and biochemical factors during the whole period of pregnancy, the basis for the classification could be height and the summary body build index calculated by us, which characterises the body proportions which remain unchanged during pregnancy.

In order to analyse the course of delivery on the basis of clinical data, we recommend to use the so-called parturient's complex body build index which can be calculated from the anthropometric data found in birth histories. The parturients should be classified into a two-factor classification consisting of this index and body height (3 x 3 or 5 x 5 SD classes).

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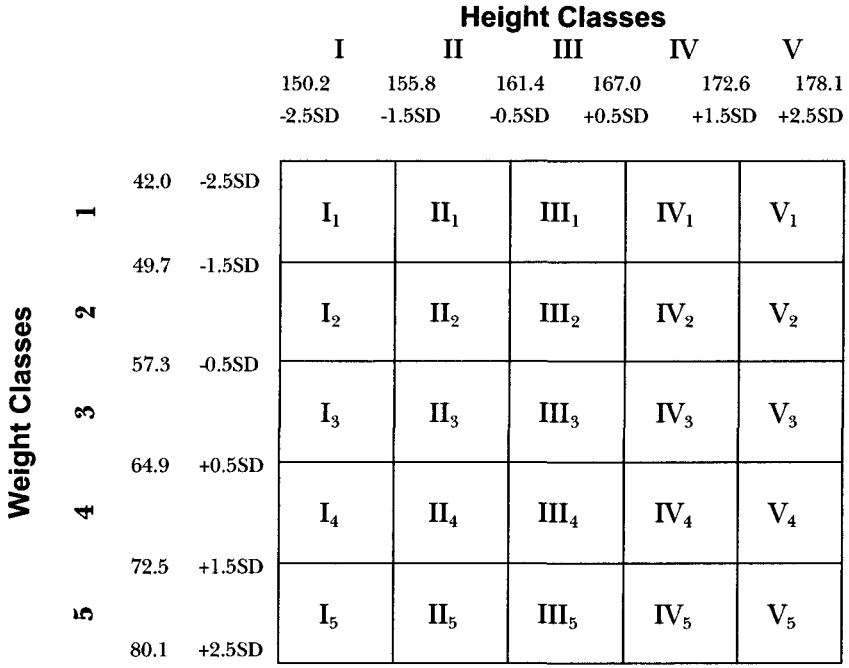
Fig. 1
Classification of women by height and weight.



Weight classes
1. very light
2. light
3. medium
4. heavy
5. very heavy

Height classes
I. very small
II. small
III. medium
IV. tall
V. very tall

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Table 1

Correlations between labour index and newborn's weight in the classes formed by parturients' complex body build index and body height.

Parturient's complex body build index	Height classes				
	I 149.9-155.1 1	II 155.2-160.3 3	III 160.4-165.6 6	IV 165.7-170.9 9	V 171.0-176.2 2
1 2.81-6.12	n=0	n=0	3239 2.18 r=0.250 n=17	3310 1.75 r=0.306 n=24	3529 1.75 r=0.325 n=12
2 6.13-9.14	3077 1.80 r=0.417 n=14	3280 1.75 r=0.249* n=63	3402 1.66 r=0.251* n=240	3556 1.58 r=0.209* n=311	3584 1.71 r=0.108 n=102
3 9.45-12.76	3282 1.81 r=0.418* n=59	3415 1.78 r=0.247* n=188	3548 1.78 r=0.206* n=426	3647 1.83 r=0.165* n=299	3732 1.91 r=0.174 n=46
4 12.77-16.08	3283 2.00 r=0.312 n=125	3460 1.90 r=0.188* n=125	3598 1.84 r=0.277* n=177	3615 1.82 r=0.155 n=77	3794 1.88 r=0.687 n=8
5 16.09-37.66	3511 2.33 r=0.423* n=24	3521 1.78 r=0.430* n=46	3616 2.25 r=0.485* n=55	3664 2.24 r=0.545* n=17	n=0

Every cell of the table shows the characteristics calculated for the group of women belonging to the given class. The characteristics are the following: average weight of the newborn; average of the labour index; correlation coefficient between the weight of the newborn and the index, sample size. If the correlation is significant (on the level $\alpha = 0.05$), then a dot is added to the value of the correlation coefficient.

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ELECTRONIC REPRODUCTION PROHIBITED

References

Calandra C., Abell D. A., Beischer N. A.,
1981 *Maternal Obesity in Pregnancy.* Obstetrics & Gynecology, 57:8–12.

Cherepanov V. N.,
1971 *O sootnoshenii naruzhnykh i vnutrennykh razmerov zhenskogo taza.* Akusherstvo i ginekologia, 6:45–49.

Clark P. M., Atton C., Law C. M., Shiell A., Godfrey K., Banker D. J. P.,
1998 *Weight gain in pregnancy, triceps skinfold thickness and blood pressure in offspring.* Obstetrics & Gynecology, 91, 1:103–107.

Davydov V. V.,
1967 *Rost zhenshchiny i naruzhnye razmery taza.* Kazanskii meditsinskii zhurnal, 2:40–41.

Drobny L.,
1986 *Beitrag der Anthropologie im Rahmen des medizinischen Skrining.* Anthropologie (CSSR). 24:139–145.

Frankenberg R.,
1980 *Medical anthropology and development: A theoretical perspective.* Social Science and Medicine, 14(4):197–207.

Haste F. M., Anderson H. R., Brooke O. G., Bland I. M., Peacock I. L.,
1991 *The effects of smoking and drinking on the anthropometric measurements of neonates.* Paediatrics — Perinatology — Epidemiology, 5(1):83–92.

Heath B., Carter J.,
1966 *A comparison of somatotype methods.* American Journal of Physical Anthropology, 24:87–99.

Hickey C. A., Cliver S. P., McNeal S. F., Hoffmann H. J., Goldenberg R. L.,
1996 *Prenatal weight gain patterns and birth weight among nonobese black and white women.* Obstetrics & Gynecology, 88:4, 490-496.

Kaarma H.,
1980 *Naruzhnye razmery taza v sisteme khorosho korelirovannykh razmerov tela u zhenshchin.* Acta et Commentationes Universitatis Tartuensis, 548: 93–9.

Kaarma H.,
1981 *Multivariate statistical analysis of the women's anthropometric characteristics' system.* Tallinn: Valgus.

Kaarma H.,
1983 *Vedushchie faktory v sisteme razmerov tela u zhenshchin.* Arkhiv anatomii, histologii, embriologii, 9:67–70.

Kaarma H.,
1991 *Antropoloogiline meetod sünnitusabis.* Acta et Commentationes Universitatis Tartuensis, 920:63–67.

Kaarma H.,
1995a *The role of pelvic measurements in women's whole body structure.* Papers on Anthropology VI. Proceedings of the 7th Tartu International Anthropological Conference. Tartu. 99–106.

Kaarma H.,
1995b *Complex statistical characterization of women's body measurements.* Anthropologische Anzeiger, 53:239–244.

Kaarma H., Raud J.,
1997 *Application of anthropometric data in obstetrics.* Ginekologia Polska, 5b 68:37–43.

LICENSED TO UNZ.ORG
ELECTRONIC REPRODUCTION PROHIBITED

Kaarma H., Salundi U., Koskel S.,
1997b *Body build structure of neonates.* International Journal of Anthropology, 12, 2:21–28.
Kaarma H., Saluste L., Thetloff M., Peterson J., Riive M., Salundi U., Veldre G., Raud J.,
1998 *Body structure of nonpregnant and pregnant women and newborns. Study aid.* (Women's Hospital of the University of Tartu, Centre of Physical Anthropology) 67 p.
Kalganova R. I.,
1978 *O vedenii rodov pri klinicheski uzkom taze.* Akusherstvo i ginekologia, 7:67–70.
Kretschmer E.,
1961 *Körperbau und Character.* Berlin – Göttingen – Heidelberg.
Lederman S. A., Steven A. P., Heymsfield B., Wang J., Thornton J., Pierson R. N.,
1997 *Body fat and water changes during pregnancy in women with different body weight and weight gain.* Obstetrics & Gynecology, 90, 4:483–494.
Maiste E.,
1992 *On haemodynamics and the peculiarities of its adaptation reaction in healthy young subjects depending on health and somatotype.* Acta et Commentationes Universitatis Tartuensis 951, Papers on Anthropology V: 68–74.
Martin R.,
1928 *Lehrbuch der Anthropologie.* Jena.
Matveyev Y. G.,
1973 *Znachenie antropometrii v prirode rodov.* Akusherstvo i ginekologia, 4:34–36.
Noppa H., Anderson N., Bengtson C., Bruce A., Isakson B.,
1980 *Longitudinal studies of anthropometric data and body composition. The population study of women in Göteborg, Sweden.* American Journal of Clinical Nutrition, 33:155–162.
WHO
1995. *Physical status: the use and interpretation of anthropometry.* Report of a WHO Expert Committee. Geneva.
Riive M., Kaarma H., Tiit E.,
1992 *Anthropological characterization of the external abdomen of pregnant women at the end of pregnancy.* Acta et Commentationes Universitatis Tartuensis 951, Papers on Anthropology V: 87–92.
Saluste L.,
1992 *An anthropological model for research into the dietary regime of pregnant women.* Acta et Commentationes Universitatis Tartuensis 951, Papers on Anthropology V: 97–100.
Solth E.,
1960 *Die Parameter des weiblichen Beckens in Abhängigkeit von der Körpergröße.* Medizinische Klinik, 37:1639–1641.
Wienker C.,
1984 *The emergence of biomedical anthropology and its implications for the future.* American Journal of Physical Anthropology, 64(2):141–146.
Wilmore J. H., Behnke A. R.,
1970 An anthropometric estimation of body density and lean body weight in young women. American Journal of Clinical Nutrition, 23:267–274.

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BOOK REVIEW ARTICLE

In Defense of Eugenics

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> The best of either sex should be united with the best as often, and the inferior with the inferior as seldom, as possible.
> Plato: *The Republic* , c. B.C.370

Eugenics: A Reassessment
Richard Lynn
Westport, CT: Praeger, 2001
366pp., $85 US

As a scientific field the legacy of eugenics is a peculiar one. For several decades, its image in terms of an intellectual movement has been shaped by falsehoods and distortions. The conventional view reflects not just a degree of bias from historical accounts but scathing exaggerations, which portray a once thriving academic discipline as morally and scientifically discredited. But is this an accurate assessment of a discipline that once attracted preeminent scholars, appealed to distinguished individuals of accomplishment — university presidents, medical professionals, scientific innovators, and philanthropists alike — and received considerable support from various quarters of society? If not, then *how* did it acquire such an odious reputation and *why*?

Richard Lynn's recent book reconsiders the credibility of eugenics as a valid scientific endeavor. Unlike other contemporary accounts, Lynn's thorough study provides a comprehensive second look by scrutinizing a number of anti-eugenic arguments that over the years have called into question its credibility. In sober and dispassionate terms, Lynn's careful analysis of various eugenic policies — including the societal implications that are likely to follow a eugenic renewal — is long overdue, and for its meticulous *tour de force* probe, his account offers an unrivaled assessment of this vastly maligned subject. In other words, don't expect to find it on Oprah's book club list!

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As thorough and objective as Lynn's book is, it remains engulfed by a biased academic literature that generates a continuous stream of anti-eugenic works. Unfortunately, the high price ($85) and limited availability of Lynn's excellent and timely book will unlikely provide an adequate level of balance against a tide of negative sentiments. The scholarship that spans the history of this once thriving academic field is saturated with hysterical screeds such as Stefan Kühl's *The Nazi Connection: Eugenics, American Racism and German National Socialism* and Nicole Hahn Rafter's *Creating Born Criminals.* Historical accounts, typical of Garland Allen and Daniel Kevles, depict leading eugenicists as malevolent misanthropes. Even the Dolan DNA Learning Center of the Cold Spring Harbor Laboratory, which contains an archive for the American Eugenics Movement, claims on their web site, "It is important to remind yourself that the vast majority of eugenics work has been completely discredited. In the final analysis, the eugenic description of human life reflected political and social prejudices, rather than scientific facts" [see http://vector.cshl.org/eugenics/]. Yet how valid is this claim? Is this merely a baseless charge quite typical of contemporary egalitarian "political and social prejudices," which continues to fuel the current negative climate of opposition toward eugenics?

As behavior genetic research continues to discover year after year how genes influence physical and behavioral traits, the non-scientific "academic" literature continues to produce anti-eugenic monographs, which further compound a dense fog of distortions and enduring fables. The paradoxical aspect about modern advances in genetic and bio-medical research is that as the scientific process refines and improves upon recent discoveries in cloning and biotechnology, which moves society that much closer to confronting eugenic-oriented policies, opponents of eugenics continue to proclaim the implausibility of applied eugenic programs. It is like insisting that the earth is really flat despite all the evidence to the contrary from improved navigational and space exploration.

Although one could find examples of eugenic ideas from ancient history to modern times, the Victorian scientist and explorer Sir Francis Galton is credited for originating the

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modern concept of eugenics. As the author of several influential books and papers on the science of eugenics, Galton's founding role is the scientific equivalent of his own cousin's role — Charles Darwin — in discovering the evolutionary importance of natural selection. Galton defined eugenics as "the study of the agencies under social control that may improve or impair the racial qualities of future generations either physically or mentally." He argued that the aim of eugenics should be the improvement of a population's genetic qualities in terms of its health, intelligence and moral character.

While Lynn's historical review of this period is brief, he carefully pinpoints the more significant developments from this pioneering era. Given the crude research level of the biological sciences during this early period, Lynn shows rather convincingly just how sound and reasonably accurate many scientific inferences of the early eugenicists were in their assessments about identifying, selecting and improving upon human qualities. Although Bateson had just discovered Mendel's work on the genetic transmission of heritable traits, and the exact details of the molecular structure of the gene would be a few more decades away, the overall working assumptions of the eugenicists held up remarkably well. The critical point is that man is capable of altering the future course of his own destiny while correcting nature's mistakes along the way.

Accordingly, the path to applied eugenics splits into two overlapping but distinct groups: those who favored *negative* and *positive* approaches to accomplishing the enhancement of inherited human traits. Advocates of negative eugenics believed that the best way of improving the human condition for future generations is to control fertility. If society limited the reproduction of the dysgenically-inclined, individuals who find it difficult to lead a productive and self-sustaining existence while abiding by society's moral and legal obligations as responsible citizens, future generations would beyond doubt benefit from the dwindling ranks of the criminally prone, mentally deficient, or morally degenerate, such as dangerously unstable psychopathic manic depressives. Birth control and sterilization

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were methods of choice for negative eugenicists, and this led to much criticism of eugenics.

Those who advocated positive eugenic measures emphasized the desirability of selecting, among the more reproductively fit, those who could increase the future qualitative potential of the gene pool. Eugenicists proposed a variety of financial incentives in order to assist the more gifted and healthier members of society to have larger families. Sir Ronald A. Fisher, a distinguished statistician and leading eugenicist, once proposed financial compensation among those within the "professional classes" who for "prudential" reasons were having fewer children. As Fisher argued, "To increase the birth-rate in the professional classes and among the highly skilled artisans would be to solve the great eugenic problem of the present generation and to lay a broad foundation for every kind of social advance". In essence, the intended result is to shift birth rates demographically away from dysgenic population trends, and to ensure that such inherited traits would be passed on to future generations in order for advanced civilizations to continue along the path of progress. The distinguished geneticist F.A.E. Crew once summarized the significance of eugenics in contemporary society,

> The supreme duty of society is to weed out its worst qualities and to nurture its best. Racial improvement is to be achieved under conditions in which the physical and intellectual improvement of the individual does not interfere with his racial and ethical obligations and in which the promotion of human betterment is undertaken by society and its greatest work. Individual improvement is a necessary concomitant of racial betterment, and the first duty of the individual is to transmit unimpaired and undefiled a noble heritage to generations yet unborn [1927].

Much of Lynn's overall argument reflects the application of commonsense. The goals of eugenicists have been by and large society's precedent for sustaining highly evolved civilizations — a vibrant and healthy population, sound in mental and physical qualities. Advanced societies continually strive to overcome diseases by eliminating genetic defects or chromosomal

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abnormalities, preventing unwanted pregnancies, reducing crime and welfare dependency, and nourishing healthy children. To this extent, the evolution of bio-medical technologies and scientific research benefit the goals and priorities of eugenically inclined societies. An example of this is the sophisticated techniques now available in pre-natal diagnosis of hereditary defects. By highlighting the latest discoveries in bio-medical technology, Lynn provides an up-to-date overview of the procedures that could actually bring about a eugenics renewal.

The evidence that gives credence to the concept of eugenics stems from research findings in the behavioral sciences over the last half-century. Contemporary discoveries from twin, adoption, and family studies as well as scientific advances in behavior genetic analysis provide a basis for the credibility that mankind's heredity can be improved much like the principles that botanists and animal breeders applied to their stock in trade. As S. J. Holmes once put it, "If there was ever a farmer who thought that it did not matter whether he bred from his runts and scrubs or from his finest animals his name is not recorded in the annals of genetics"[1933]. Human personality traits, particularly intelligence or cognitive ability, are essentially polygenetic (influenced by multiple genes) in nature and Lynn shows how these research discoveries — contrary to anti-eugenic propaganda — actually form a scientific rationale for eugenics. However, it is rapidly becoming possible to identify and screen out individual defective genes and this will permit the carriers of such genes to be able to reproduce without passing on specific defects on to their offspring.

This latter development may in time overcome the objections to eugenics in Western democracies arising from the pivotal importance of "individual rights". A major issue confronting Western nations is whether or not democratic countries will eventually adopt sufficient eugenic methods for improving their base population. Central to the political tradition among Western societies is the pivotal importance of "individual rights". As Lynn points out, this remains the single most critical issue standing in the way of any eugenic revival within Western democracies. What must be achieved in Lynn's

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view is a balance between preserving individual rights and protecting the interests of future generation. An ability to screen out harmful genes from the reproductive process would obviate this conflict in ideals.

Lynn challenges the conventional wisdom that the field of eugenics degenerated into an evil force with the culmination of the Second World War. What Lynn refers to as the "slippery slope" argument is the pervasive belief that if eugenic policies were permitted, governments would eventually use the rationale of eugenics to justify "final solution" schemes for eliminating targeted groups from society. The notion that the eugenics movement provides the basis for wartime atrocities, which represented the culmination of a vindictive campaign of hatred and resentment, is like blaming modern progressives for the crimes of Stalin and Lenin because communists and liberals had similar agendas — striving to build egalitarian, collectivist societies.

A careful look at the record vindicates the activities of eugenicists from these exaggerated charges. It is certainly true that a number of scientists and other officials participated in a well-organized eugenics movement of a federated nature with links to a number of European countries and the United States. The activities of these eugenicists were well documented over the years. For instance, Harry Laughlin secretary of the Eugenics Record Office, records the details of these activities in *A Decade of Progress in Eugenics* [1934]. The idea that these eugenicists were responsible in any way for mass atrocities during World War II is, as Lynn correctly notes, a guilt-by-association red herring. Is it really plausible to consider that the progressive activities of Margaret Sanger and the organizers of Planned Parenthood inspired genocidal acts of mass murderers?

Perhaps the single most important thread of thought that emerges from Lynn's masterful account is why the science of eugenics is so important now given the tremendous advances in genetic cloning and the mapping of the human genome. As the knowledge of our genetic heritage becomes more complete, the scientific community will be able to utilize this level of understanding for eugenic goals. The significance of applied eugenics relates to the priority that society places on certain

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human traits, especially those qualities that are demanded of in sophisticated high-tech economies; qualities which can be enhanced by eugenic intervention. Consider Warren Buffett's recent observation before a gathering of Harvard Business School students. The world's second-richest man, chairman of Berkshire Hathaway Inc., "told the nation's future business leaders and entrepreneurs that he always looks for three qualities in a prospective hire: intelligence, energy and integrity" [2001]. It is not so coincidental that these same qualities were traits of human character for which Galton and the other early eugenicists devoted much of their careers to the quest of their betterment.

References

Crew, F.A.E.
1927 *Organic Inheritance in Man* Oliver & Boyd, p. 177
Laughlin, Harry
1934 *A Decade of* Progress *in Eugenics: Scientific Papers of the Third International Congress of Eugenics* The Williams & Wilkins Co.
Hasselt, Caroline van
2001 20 October *Sun-Sentinel* (Palm Beach edition), p. 13B
Holmes, Samuel J.
1933 *The Eugenic Predicament* Harcourt, Brace & Co., p. 118

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Essays in Eugenics

Sir Francis Galton, F.R.S.

With Biographical Introduction by Roger Pearson

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Reprinted from the original edition published m London by The Eugenics Education Society m the year 1909, this remarkable work by the founder of eugenics is an essential source book for all who are interested m the history of heredity and the eugenics movement.

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Age and Origin of the Human Species

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The author questions prevailing fashions concerning the origin of *Homo sapiens sapiens,* and discusses recent evidence which favors the older view that the evolution of *Homo* to full *sapiens* status was probably achieved by a small population resident somewhere in Eurasia, from whence descendants of that population may have spread out to other areas of the world where they may have absorbed genes from older, less evolved populations.

Key Words: *Homo sapiens sapiens, Homo erectus,* mitochondrial DNA, Ngandong man, Australoids

The speciation event that produced *Homo sapiens sapiens* could not have occurred contemporaneously in more than a very few individuals. It follows that those few *H.s.sapiens* would have possessed a very restricted sample of the progenitor species' genetic diversity. However, the diversity observed in current populations implies that there were never less than several thousand breeding pairs in the human ancestry (Harpending et al., 1998). Accordingly, the founding *H.s.sapiens* and their descendants must have interbred with the progenitor species (and perhaps other pre-human populations) in order to preserve the diversity which exists today.

While some changes in the genome must have occurred after the speciation event, the "lifetimes" of the genetic elements considered (in this context and the works cited here) are far longer than new estimates of *H.s.sapiens*' age (Mountain et al., 1994). As a consequence, most of the current diversity must be the result of interbreeding with pre-human populations. On this view we would expect to see the most hybridized elements of the modern indigenes in those areas where pre-human population density was highest, such as Africa and H.s. in East Asia. Also, we would expect those populations to have the greatest diversity

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today, because they would preserve more of the pre-human genome, which would have had much more genetic variety than was represented in any, presumably tiny, original population of *H.s.sapiens.*

In fact, we do find that Africans and some *H.s.sapiens* E. Asian populations have not only more diversity (Jorde et al., 1997), but central Africans are said to have ancestral genetic elements as well (Tishkoff et al., 1996). It is also clear that the population which gave rise to *H.s.sapiens* had been separated from the sub-Saharan Africans' ancestors for longer than our species' lifetime.[2] This requires the proponents of the "African Eve/Out of Africa" views to posit a segregation of central Africans from the proto-modern population in which speciation occurred. Since they also claim that modern humans originated in and radiated from Africa, Tishkoff (for instance) is driven to suggest that this hundreds of thousand year sequestration was somewhere in N. E. Africa.[3]

This is an implausible, ad hoc suggestion. By contrast, it is natural to suppose that separation implies the population ancestral to humans was a part of the radiation out of Africa into Eurasia, before the speciation event occurred. If the speciation event took place in Eurasia, we would expect that the descendant population would show a "bottleneck" effect, and that those populations would possess low genetic diversity today, relative to central Africans, which is what we find.[4] By contrast, central Africans have always had a large effective population size (Tishkoff et al., 1996), and are characterized by extraordinary diversity (Kidd et al., 1998). Also we would expect that Asians and Europeans would be more closely related to each other than either are to Africans, as is revealed in the discussion of cladistics below. This view also accounts for the existence of the Eurasian types. Yet more impressive evidence for a common

[2] Harpending, et al. (1998); see especially the conclusions.

[3] Tishkoff, H.S.A., from a report in the Science Daily of 25 January 1999 of a presentation at the annual meeting of the American Association for the Advancement of Science in Anaheim on 22 January.

[4] Tishkoff, H.S.A., from a report in the Science Daily of 25 January 1999 of a presentation at the annual meeting of the American Association for the Advancement of Science in Anaheim on 22 January.

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Eurasian origin is the existence of a 200,000 year-old betaglobin linkage common in Asia and rare in Africa (Harding et al., 1997) and the "ancient Eurasiatic marker": NRY binary polymorphism M173, whose particular significance is discussed below.

The age of the human species had lately been estimated at between 150,000 and 250,000 years, based on studies of mitochondrial DNA. Those estimates were based on the assumption of clonal transmission of the mtDNA, and the cited studies invalidate that (Awadalla et al., 1999; Hagelberg et al., 1999; Eyre-Walker et al., 1999), but we do not know by how much the dates are off. Eyre-Walker has proposed that "Eve" may have lived twice as long ago as current estimates,[5] or as long as 500,000 years BPE. If there were bottlenecks subsequent to a mtDNA replacement event, which wiped out older lines, it would seem that the sweep occurred more recently than it really did. Accordingly, new estimates of *H.s.sapiens*' age preclude the possibility that such a replacement event took place in, or marked the origin of, our species.

More than one group of researchers (such as Harpending and Jorde) consider that the data support a "clean sweep" of earlier mtDNA lineages and this has frequently been raised in support of the "Eve/Africa" view. However, such ancient dates for an mtDNA replacement event would be consistent with radiation of pre-human species out of Africa, rather than the origin of *H.s.sapiens*. There has never been any reason to assume that the putative female (whose mtDNA is said to be ancestral to that found in all living humans) was, herself, a *H.s.sapiens*. The entire basis for the "Eve" hypothesis is in doubt, as mtDNA Homogeneity may simply show the dilution of mutations caused by recombination. The putative common source of all human mtDNA is probably neither chronologically nor causally related to the origin of *H.s.sapiens*.

In this circumstance, it is only reasonable to assume that the date of the human cultural explosion suggests the approximate era of *H.s.sapiens* speciation. Research on the Y-chromosome

[5] Eyre-Walker, 'Recent Finds in Paleoanthropology' in Athena Review vol. 2, no. 2 (10 March 2000).

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yields an estimate of 59,000 years BPE for the "most recent common [paternal] ancestor", (Underhill, et al, 2000) assuming no selection and population structure effects. Given that caveat, the 59Kyr date fits those of the earliest human cultural remains like a hand in a glove.

About forty thousand years ago, people from central Asia migrated into Europe, and their descendents constitute a majority of the population there today (Semino & Passarina, 2000) so we know what type of people they were. They came from the general area of those earliest human cultural sites, and they shared a genetic marker designated as M173. The population which carried that marker must have existed for some time before their migration began, because derivative forms of it are found in Siberia and the Amerinds, which implies that it was present in their common ancestral population that existed prior to 40,000 years BPE. Again, we have a good idea of what that ancestral Eurasian type was, by inference from the populations it generated, and it seems likely to be as ancient as humanity itself. When was there time, within the human culture period, for evolution of the Eurasian ancestral type from African immigrants? Moreover, the precursors to humanity are all present in Eurasia (from *H.ergaster*, and *heidelbergensis*, through archaic *sapiens*) while no comparable sequence has been discovered in Africa.

Even if, contrary to all the data adduced here, humanity had originated in Africa, it seems contrived to assume that *H.s.sapiens* would have immediately migrated from that continent, to leave their earliest known (and all subsequent) cultural artifacts in Eurasia. But if (on the Afro-origins view) they did, why did they evolve into the Eurasian ancestral type? What mechanisms, events, and pressures would conduce to such a change? Do the Afro-origin people perhaps agree that the speciation event created the Eurasian type from archaic *sapiens*? The invocation of "genetic drift" and "founder effect" as used to

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assert a counter-intuitive interpretation of the diversity gradient (Tishkoff et al., 1998)[6] will not serve.

I believe it is incumbent upon those who support the view of *H.s.sapiens* origins in Africa to explain how and why they were converted to Eurasian types so quickly. And those who maintain that humans originated long before they began to leave cultural artifacts need to explain why; what changed, that made them really human? Why would humans evolve, long ago in Africa, but only begin to behave like humans once they arrived at northern latitudes: are we back to the climate theory of evolution? The author's view is that the only logical interpretation of all the available data, including extant populations, is that the speciation event occurred in a Eurasian population, of archaic *sapiens*, with ancient indigenous roots, in which case it is obvious how *H.s.sapiens*' progenitors were sequestered from central Africa.

The current Eurasian populations are lightly pigmented, and that is associated with high latitude species and populations in many other genera. It has often been suggested that the ancient ancestors of the Eurasian types were part of a population that had been resident at high latitudes long enough to manifest the derived characteristic of light pigmentation. On this view we would expect to find that light-skinned people would display low diversity and a distant relationship to central Africans, which is what we find. In fact, the genetic difference between Africans and Europeans is so distinct that the proportion of European admixture in Afro-Americans can be determined with a margin of error of only 0.02 (Destro-Bisol et al., 1999).

Harpending states that the population ancestral to *H.s.sapiens* was "small during most of the Pleistocene" and that "the number of our ancestors just before the expansion ('origin') of modern humans was small, only several thousand breeding adults." We can compare this characterization of our

[6] See p. 1395 and p. 1399, and generally, to account for the observed diversity clines, which intuitively support radiation out of Eurasia by low-diversity *H.s.sapiens*, gaining diversity as they interbred with pre-human populations subsequent to their speciation.

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ancestral population with the evidence that Africans have always had a large effective population size. It is this incongruity that forces Tishkoff to postulate that the pre-human population was both "isolated from the rest of the African continent" and "somewhere in N. E. Africa."[7] Moreover, this would have been for a very long time. Perhaps in Lemuria or Atlantis?

The evidence indicates that humans came from a sparse population in Eurasia; that their diversity was further reduced by the speciation event; that they subsequently expanded in every habitable direction; and that they interbred with the populations they came in contact with, producing extant hybrid populations. Hence Mountain et al. (1994) reports that in the cladistic tree "the European branch is significantly short relative to all other branches," that "the neighbor-joining tree... places the European sample close to the center of the tree with an extremely short branch," and further that "Europeans and northeast Asians are closely related." The first two of these statements are inconsistent with origin and radiation out of Africa while the third does not lend it any support.

Evidence for radiation into Africa was found by Hammer et al. (1998) and Tishkoff et al. (1998) noted such evidence, but the latter went on to suggest that no attention should be paid to it.[8] The radiation of low-diversity *H.s.sapiens* from Eurasia is also the best explanation for the discoveries, dates, morphology and genetic data in *H.s.E.Asia.* There, *H.s.sapiens* and erectus lived in proximity for as long as 20,000 years (Swisher et al., 1996). So many of the human fossils from this area and era show a mixed suite of *H.s.sapiens* and erectus features that interbreeding is the most plausible interpretation of the data. Many students of fossil morphology have long contended that there is continuity between *H.s.E.Asian* Hominid fossils and extant indigenous peoples.[9] Genetic data show these populations are distinct from

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[7] Tishkoff, as quoted in Science Daily (above).

[8] Tishkoff et al. (1998). On page 1399, she postulates a "dramatic" founder effect and genetic drift.

[9] Wolpoff, Milford H., submitted a post entitled "No *Homo erectus* at Ngandong" to Human Origins News (http://www.pro-am.com/origins/news/article19.html9) on 16 March 2000. He is perhaps the best known proponent of the view that there is continuity between the ancient and

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northern Asian populations and of comparable diversity to Africans (Chang et al. 1996).[10]

The Ngandong specimens, in particular, have occasioned much debate on account of their mixture of *H.s.sapiens* and erectus traits and their affinities with Australians.[11] We would expect that the crania of such hybrids would show affinities to both species, and that is why these fossils are so hard to classify. Some authorities say they are clearly erectus, while others point to modern traits, and especially that very similar skulls (from overlapping dates) are found in Australia. Moreover, the traits in question occur in the modern population. This is not merely consistent with, but constitutes strong evidence for, the view that radiating, low-diversity *H.s.sapiens* interbred with relic erectus populations, thus acquiring the near-African diversity and primitive morphological traits manifest in the Asian fossil record and extant indigenes.

The hypothesis presented here uniquely explains one particularly puzzling aspect of the Australian fossil record. The oldest fossils from Australia are the most modern in morphology. On my view, this is explained by the fact that the first wave of humans who passed through H.s. . Asia on their way to Australia were less hybridized with resident erectus populations because they spent less time living among them. Populations that settled Australia later (leaving the Kow Swamp-

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modern populations; saying, for instance, that the population represented by the Ngandong specimens is "incontrovertibly" ancestral to some Australian fossils and living people.

[10] Chang et al. 1996, p. 98 notes the way Melanesians are genetically differentiated from other Pacific islanders and Asians (citing Flint et al. (1993)). Their figures 3 & 5 are somewhat pertinent. Mountain, op. cit., p. 6516, notes clustering of pygmies and *H.s.E.Asians.* Figure 1 shows how representative global populations cluster: the pattern is consistent (in the author's interpretation) with Eurasian hybridization of a species whose genome subsumed the diversity of the current (also hybridized) Africans. Kidd, op. cit. p. 225, cites Harding (1997) concerning variation of betaglobin in *H.s.E.Asians.* Jorde, op. cit., Figure 2 shows *H.s.E.Asians* clustering with pygmies. Hagelberg (as cited in 11, below) finds affinities between pygmies and Andaman Islanders.

[11] Wolpoff's post (8, above) seems to be in response to the statement of Philip Rightmire (cited as "an expert on the species") in the 15 December 1996 issue of Human Origins News that "They [Ngandong specimens] are unequivocally H. erectus."

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type skulls) had been living in *H.s.E.Asia* for as much as 20,000 years and were far more hybridized in consequence.

Wolpoff accepts that the Ngandong skulls are representative of the population that produced the Kow Swamp-type specimens, and left descendants in the modern population. But he explicitly rejects the view, as set forth here, that there was inter-species gene flow, and calls it "unacceptable." This, however, is a socio-political rather than a scientific statement. He does not contend that it isn't a reasonable construction of the data, but rejects it on grounds of dogma, because of its implication that some modern populations express a more primitive genome. Wolpoff considers that the hypothesis of hybridization is "unacceptable" because it "raises the specter that some human populations can be interpreted to differ from others because they have more genes from an extinct, primitive human species." Thus, according to Wolpoff and other adherents of this doctrine, scientific truths which conflict with their politically-correct "just so" paradigm are outside the bounds of contemplation. It is noteworthy that he is driven to contend that erectus is human ('true' man) in order to preserve logical consistency ... at the expense of common sense.

The people of the Andaman Islands have also been the subject of a study which has been reported as "supporting 'out of Africa.'"[12] This is an example of the almost universal, and usually unstated, assumption that there are only two possible hypotheses of human origins: the multi-regional, and African views. If the data conflicts with the multi-regional view it is said to "support" African origin. This not only begs the question, but is arguably deceitful. In this case, the data, considered by itself, may not contradict African origin, but as part of the pattern already noted above, it actually supports the opposing hypothesis presented here. The Andaman Islands are yet another of the places where *H.s.sapiens* interbred with a relic erectus population, were hybridized, and existed in an isolated condition until the present. Not surprisingly, they show genetic affinities to central Africans, because (like them and some

[12] Hagelberg, E. & Fox, C. L. in an unpublished study, quoted in Scientific American, 'Science and the Citizen', January 1999.

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H.s.E.Asians) they preserve substantial portions of the pre-human genome.

It is nonsense to suggest that the first groups of humans "out of Africa" immediately migrated to the ends of the earth (Andamans, Australia, New Guinea etc.) or that the populations of all such remote places should possess such diversified and similar genomes by chance. The inferred pattern of hybridization is the more parsimonious hypothesis. They are found in these out-of-the-way places because they were driven there by more advanced populations who supplanted such hybrids elsewhere.

Yet another challenge exists to the claim that our species radiated out of Africa. There is a consensus among anthropologists that *H.s.sapiens*' cultural artifacts indicate a higher level of cognitive function than any previous species. The technical level and diversity of their tool industry alone would have set them apart. Add to that whole new categories of behavior: the creation of representative art, the domestication of the dog, etc. Thus, we would expect that populations which were hybridized with predecessor species would be intellectually and cognitively disadvantaged in relation to low-diversity, Eurasian populations. In fact we do observe that (Herrnstein and Murray, 1994), which clearly reveals the direction of species radiation. Expressing this view, however, is likely to attract such vehement abuse that few dare. Only those whose livelihood is not subject to the political pressures will usually be ready to speak the truth on this subject, and their views are ruthlessly censored.

References

Awadalla P., Eyre-Walker A., Smith J. M.
1999 'Linkage Disequilibrium and Recombination in Hominid Mitochondrial DNA', Science vol. 286, pp. 2524-2525 (24 December).

Chang F-M., Kidd J. R., Livak K. J., Pakstis A. J., Kidd K. K.
1996 'The world-wide distribution of allele frequencies at the human dopamine D4 receptor locus', Human Genetics, 98: 91-101.

Destro-Bisol G., Maviglia R., Caglia A., Boschi I., Spedini G., Pascali V., Clark A., Tishkoff H.s.
1999 'Estimating European admixture in African Americans by using microsatellites and a microsatellite haplotype (CD4/Alu)', Human Genetics 104: 149-157.

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Eyre-Walker A., Smith N. H., Smith J. M.
1999 Proceedings of the Royal Society, London Series B. Biological Sciences 266, 477.
Hagelberg E. et al.
1999 Proceedings of the Royal Society, London, Series B. Biological Sciences 266, 485.
Hammer M. F., Karafet T., Rasanayagam A., Wood E. T., Altheide T. K., Jenkins T., Griffiths R. C., Templeton A. R., Zegura H.S.L.
1998 'Out of Africa and Back Again: Nested cladistic analysis of human Y chromosome variation', Molecular Biological Evolution, April 15 (4): 427-41.
Harding R. M., Fullerton H.S.M., Griffiths R. C., Bond J., Cox M. J., Schneider J. A., Moulin D. H.s., Clegg J. B.
1997 'Archaic African and Asian lineages in the genetic ancestry of modern humans', American Journal of Human Genetics, April 60(4): 772-89.
Harpending H. C., Batzer M. A., Gurven M., Jorde L.B., Rogers A. R., and Sherry H.S.T.
1998 'Genetic traces of ancient demography', Proceedings of the National Academy of Science, USA, vol. 95, pp. 1961-1967.
Herrnstein, R. J. and Murray, C. The Bell Curve,
1994 Simon and Schuster (The Free Press)
Jorde L. B., Rogers A. R., Bamshad M., Watkins W. H.s., Krakowiak P., Sung H.s., Kere, J. and Harpending H. C.
1997 'Microsatellite diversity and the demographic history of modern humans', Proceedings of the National Academy of Sciences, USA, vol. 94, pp. 3100-3103.
Kidd K. K., Bharti M., Castiglione C. M., Zhao H., Pakstis A. J., Speed W. C., Bonne-Tamir B., Lu R-B., Goldman D., Lee C., Nam Y.S., Grandy D. K., Jenkins T., Kidd J. R.
1998 'A global survey of haplotype frequencies and linkage disequilibrium at the DRD2 locus', Human Genetics 103: 211-227.
Mountain J. L. and Cavalli-Sforza L. L.
1994 'Inference of human evolution through cladistic analysis of nuclear DNA restriction polymorphisms', Proceedings of the National Academy of Sciences, USA, vol. 91, pp. 6515-6519.
Semino, Ornella & Passarino, Giuseppe
2000 'The Genetic Legacy of Paleolithic *Homo sapiens sapiens* in Extant Europeans: A Y Chromosome perspective.' Science vol. 290 (5494) pp 1155-60 (Nov. 10).
Swisher III C. C., Rink W. J., Anton H.S.C., Schwarcz H. P., Curtis G. H., Suprijo A., & Widiasmoro
1996 Science, vol. 274 (5294), pp 1870-1874.
Tishkoff H.S.A., Dietzsch E., Speed W., Pakstis A. J. et al.
1996 'Global patterns of linkage disequilibrium at the CD4 locus and modern human origins', Science, Washington, March 8.

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ELECTRONIC REPRODUCTION PROHIBITED

Tishkoff H.S.A., Goldman A., Calafell F., Speed W. C., Deinard A. H.s., Bonne-Tamir B., Kidd J. R., Pakstis A. J., Jenkins T., and Kidd K. K.
1998 'A Global Haplotype Analysis of the Myotonic Dystrophy Locus; Implications for the Evolution of Modern Humans and for the Origin of Myotonic Dystrophy Mutations', American Journal of Human Genetics, 62: 1389-1402.

Underhill, Peter A., Peidong Shen, Alice Lin, Li Jin, Giuseppe Passarino, Wei Yang, Erin Kauffman, Batsheva Bonne-Tamir, Jaume Bertranpetit, Paolo Francalacci, Mutanser Ibrahim, Trefor Jenkins, Judith Kidd, H.S. Qasim Mehdi, Mark Seielstad, R. Wells, Alberto Piazza, Ronald Davis, Marcus Feldman, L. Cavalli-Sforza, & Peter Oefner
2000 Letter, *Nature Genetics;* vol. 26, November.

Wolpoff, Milford H.,
2000 in a post entitled: "No *Homo erectus* at Ngandong" to Human Origins News (http://www.pro-am.com/ origins/news /article 19.html[13]) on 16 March 2000.

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Also: Lynn (1991), Zindi (1994), Lynn (1994), Snyderman & Rothman (1987), Jensen (1993), Jensen & Whang (1993).

[13] http://www.pro-am.com/origins/news/article19.html
[14] http://www.rafonda.com/

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Ethnic Differences in Pain Perception: a Biological Basis

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Behavioral differences between the various human races have been observed (e.g. intelligence). The perception of pain is essential for human survival. Individual as well as group differences have been reported in pain behavior, suggesting that pain behavior may be genetically influenced. To develop more efficacious pain treatment, it will be important to understand the genetic mechanism of pain and to uncover any differences between the races. The presence of genetic differences will indicate the need to consider race in future pain management strategies.

Key Words: nociception; pain; racial differences

Racial differences in skeleto-muscular, endocrine and nervous systems have been previously described (e.g., Baker, 1974; Yanovski et al., 1996). Because phenotype and behavior shows significant heritability, they are, at least partially, genetically mediated. For example, Asian American students will academically outperform black American students, regardless of socio-economic standing (NSF, 1994). Conversely, it should be no surprise that blacks are athletically more able than Asians.

Genes are thought to mediate many behaviors, ranging from aggression to self-discipline, since their level of expression markedly differ between the races and have moderate to high heritabilities (Rushton, 1995). The perception of pain is a mechanism by which humans receive bodily as well as environmental information. Although it may seem that having no pain perception maybe beneficial, in reality a dysfunctional pain perception system is deleterious. For example, patients

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who are congenitally insensitive to pain repeatedly inflict severe injuries upon themselves and require constant medical attention. The reduced pain perception is due to gene mutations that alter normal sensory neuron function (Mardy et al., 1999). Conversely, heritable pathologies exist that exacerbate pain perception, such that the usual stimulus is now perceived as extremely painful (references in Mogil et al., 1999a). Growing evidence indicate that genes play an important role in pain perception, just as genes may be important in other kinds of behaviors.

The current paper reviews racial differences in pain perception. Evidence for the genetic basis of pain perception is reviewed in animal studies, which may have relevance to humans. Ultimately, the goal is to identify genes that are involved in normal as well as abnormal pain sensation and to devise treatment based on empirical data.

Pain is defined as the sensation that accompanies impending or ongoing tissue damage. Pain detection and the response to it is crucial for survival. The diverse responses to pain range from simple to complex behaviors, from a withdrawal reflex to remembering that touching a hot stove has dire consequences. In humans, the painful sensory experience has been characterized as biphasic, the first phase being perceptual/sensory and the second phase being reactive (Bonica, 1990). This means that a pain experience can be compartmentalized into a phase where pain is detected or realized, then a phase where there is a response to pain. The response to pain integrates emotion, affect and memory.

There are those who argue that environment shapes pain behavior. "Environmentalists" argue that individual as well as racial differences in pain perception are due to cultural background. Another force that shapes pain behavior is learning (Melzack and Wall, 1982).

Pain – Nurture?

Pain has a unique status in human societies. Ceremonial torture and mutilation, involving excruciating pain, are used by some societies as tests of loyalty or worthiness. Thus, high

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tolerance of pain, in a religious or spiritual context, is viewed as desirable. However, long-term pain arising from illness, is viewed differently. Rural Black Africans believe that illness and the accompanying pain are signs of possession by evil spirits and an inevitable facts of life. Thus, they rarely seek medical attention. When Africans do take analgesics, they are under the false impression that they have been cured of illness since the pain has stopped. Africans quickly leave the clinic and since the underlying disease was not treated, they usually succumbs to the disease within a few weeks.

In contrast, American Jews have a more clinical attitude of pain, which is taken as a symptom of physiological dysfunction. Jews have lower pain tolerances, are highly vocal of their pain and more apt to seek medical assistance for their pain. Greenblum (1974) suggested that the Jewish orientation to pain is inculcated in early life as a symptom of illness, which leads to the development of increased sensitivity or awareness to bodily functions. Jews report illnesses, utilize secondary health care, such as psychiatry, place greater trust in the medical profession at a rate higher than that of other racial groups with similar SES. Thus, to Jews, pain is an indication that requires immediate medical attention, with serious consequences for long-term health and welfare.

Another aspect of pain perception that may be unique to Jews is its malleability. Following measurement of pain threshold, American Jews were told that their pain threshold was lower than that of Euro-Americans, and vice versa. After a second measurement, Euro-American pain thresholds did not change, but Jewish pain thresholds increased. It has been suggested that challenges that threaten Jewish interests, here symbolized by a challenge to increase pain threshold, may evoke changes in behavior that serves to reinforce Jewish identity and group solidarity (Greenblum, 1974). If this is true, the lack of effect of prompting on Euro-American pain thresholds suggests that Euro-Americans cannot manipulate pain perception as well as Jews or that Euro-Americans lack a sense of group cohesiveness. Although the underlying basis for these traits in

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Jews have been rationalized in historical-religious terms, a genetic basis has never been proposed. The effect of "cultural influences" on human pain perception has yet to be defined, but it possible that these "influences" are of genetic origin.

Racial differences in Pain Perception–
Clinical observations

Methods that have been used to validate a genetic basis of intelligence, such as testing of twins, have not been extensively used to identify a possible role of genes in human pain behavior. Regardless, genes are likely to have an important role in pain since clinical reports point out individual and racial differences in response to painful stimuli, in attitudes towards pain and responsiveness to analgesics. It has often been noted that responsiveness to painful stimuli as well as analgesics differs from person to person (Zborowski, 1969; Chen et al., 1989; Houghton et al, 1992). Also, intra-racial variability has been reported. For example, Northern European whites are less responsive to painful stimuli than Mediterranean whites. Variability is also observed in Negroids: American blacks appear to be more stoic to pain than West African blacks. (in Zatzik and Dimsdale, 1990). It is possible that environment may modulate pain perception, but the exact mechanism by which environment interacts with a behavior like pain perception is not known. The claim of egalitarians is that behavior is a function of environment, but it is uncertain if the same claim holds for pain.

Group differences in pain perception have been reported as well, but these studies should be scrutinized with two consideration. First, racial categorization has never been rigorously defined. Studies have used lose racial groupings, such as "Caucasian," "Black descent" or "Oriental." In one study, racial determination was by observation of skin color (Woodrow et al., 1972). Since some classification of "Asian" have included races as diverse as Polynesians and Koreans, one cannot be sure if differences between "Asians" and "Whites" are real racial differences. Equally vexing is the classification of "Black". Contemporary American blacks are a heterogeneous

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population, ranging from Afro-Caribbean and Negroid immigrants to those with varying degrees of white ancestry (Baker, 1974). Lack of attention to racial background maybe one reason why the field has many conflicting reports on racial differences in pain perception.

Secondly, methods used to evaluate pain have widely varied. In studying experimental pain, healthy volunteers are exposed to brief noxious stimulation. Various kinds of stimuli have been utilized, including heat and cold, electric shock and pressure. The two common behavioral measures in these studies are "threshold" and "tolerance." The level at which the subject feels that the stimulus is painful is referred to as "threshold." Occasionally, the subject is asked to endure the pain as much as possible in order to determine the level of "tolerance." Since "threshold" is a measure of the initial detection of pain and "tolerance" requires a focused effort to tolerate pain, it is likely that these behavioral tests measure distinct pain mechanisms. It is also possible that the different stimuli used activate different pain pathways. Thus, the use of different stimuli from study to study complicates comparison across studies. With these caveats in mind, however, racial differences in human pain are evident.

North American "Caucasians" have slightly higher pain thresholds than native Japanese, whereas American-born Japanese (second and third-generation) had higher pain thresholds than either whites or native Japanese (Chapman et al., 1982). Although the average stimulus level (that which is needed to evoke "mild" to "moderate" pain) was higher for whites, self-reported pain thresholds were almost similar between whites and native Japanese. These observations suggest that objective measures of pain (e.g. stimulus intensity) rather than subjective measures (self-reporting) may point out racial differences in pain. Other studies have found that "Asians" had lower thresholds and tolerance than Caucasians, supporting the contention that Asians are more sensitive to pain (Woodrow et al., 1972; Knox et al., 1977). The study by Woodrow et al. did not mention if the Asians were recent immigrants ("native") or 2nd generation, whereas in the study by Knox et al. (1977), the

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Asians were Chinese from Taiwan, Hong Kong and Malaysia. It is possible that some of the pain behavior may be influenced culturally, as seen in the differential responsiveness between American Japanese and native Japanese. The cultural as well as genetic factors, should be identified and their influence assessed experimentally in these people.

In comparing North American whites and blacks, blacks are more responsive to painful stimuli than whites, whether the stimulus was heat or pressure (Woodrow et al., 1972; Zatzick and Dimsdale, 1990; Edwards and Fillingim, 1998). However, one study found no difference in thresholds between North American whites and blacks (in Zatzick and Dimsdale, 1990). The racial lineage of the blacks and whites in these studies were not mentioned, including the degree of white ancestry of the blacks.

Multiple racial comparisons are rare. A study that examined three races compared tolerance to a noxious tendon pinch and found that whites had the highest tolerance, followed by blacks and then Asians (Woodrow et al., 1972). The racial ranking was similar in both males and females. In addition, Woodrow et al. (1972) found that the racial differences in pain thresholds persisted irrespective of age and levels of educational attainment.

Future studies should be performed to examine pain thresholds and tolerance to other stimuli such as heat or cold. Studies should also be performed in other multiracial nations, to test the ranking of whites, blacks and Asians in pain perception.

A second approach to evaluating racial differences in pain perception is by examining clinical pain, in patients with disease (e.g. cancer) and in patients following surgery (e.g. dental procedure). A common method in clinical studies of assessing pain is by patient rating or self-reporting. One study examined self-reported pain-related anxiety of North American Whites, blacks and Puerto Ricans (Weisenberg et al., 1975). Detailed information on racial characterization in this study was not supplied. Whites and blacks were more likely to tolerate

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anxiety related to dental pain than Puerto Ricans. Also, anxiety due to pending dental treatment was lower in Whites compared to Puerto Ricans, with Blacks intermediate in pain-related anxiety. In a different study, native Chinese myocardial infarct patients reported more chest pain than white American patients (Wang and Fallon, 1990). In parallel with this observation is that about one-third of American patients did not complain of chest pain, whereas only 18% of Chinese patients denied pain. Another study which examined qualitative differences in back pain, comparing black and white patients (Garron and Leavitt, 1979). White back pain patients reported more constant burning and bright pressure sensations than black patients. Across various conditions, it appears that whites have higher pain thresholds than blacks and Asians. What may be important in addition to pain tolerance are measures of the quality and reaction to pain.

The racially distinct prevalence of painful pathologies may suggest differential pain processing. For example, whites have an almost 2-fold higher prevalence of tension-type headache and migraine than blacks (Martin et al., 1994; Schwartz et al., 1998). Further examination of the mechanism of these pain states may lead to uncovering of racial differences in physiology, and, ultimately, racial genetic differences.

An indirect method of examining differences in pain behavior is to examine the efficacy of analgesics. People who are more sensitive to pain may require more than the usual amounts of analgesics. Since blacks require more opiate analgesic, compared to whites, Hispanics and Asians, to control post-operative pain, it is implied that blacks are more sensitive to painful stimulation (Ng et al., 1996). In this study, morphine was delivered by a patient controlled analgesia device, which allows patients to self-administer as much analgesic as required to provide pain relief. All racial groups reported similar levels of pain relief, indicating that the patients were competent in the use of the device. Similarly, black women are the most frequently users of narcotics for labor pain, followed by whites, then Asians (Albers, 1998). To support the contention that

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(American) Asians may have higher pain thresholds, Albers pointed out that almost 40% of Asians chose non-pharmacological labor pain management (e.g. paced breathing), whereas only about 24% of blacks used this method.

Other studies have reported that whites use more opiate analgesic than Asians following surgery, suggesting that opiates are more efficacious in Asians than in other races (Streltzer and Wade, 1981; Houghton et al., 1992). Racial sensitivity to opiate analgesic in chronic pain patients does not appear to parallel that in acute situations. With an 8 mg dose of morphine, "Oriental" cancer pain patients report the most analgesia compared to blacks and whites (Kaiko et al., 1983). However, in contrast to acute pain findings, blacks reported greater analgesia that whites with 8 mg of morphine. Body weight and age could not account for the differences. The apparent differential racial sensitivity to analgesics like opiates needs to be further evaluated under other clinical settings. In the acute pain state, such as that following surgery, blacks appear to have the highest requirement for analgesics, followed by whites, then Asians. In a chronic pain state, however, it appears that whites have the highest need for analgesics, followed by blacks, then Asians. Some of the disparity in sensitivity to analgesics may be related to racial differences in pharmacokinetics or metabolism (Zhou et al.,1993). Other possibilities include racial differences in receptor sensitivity and neurochemical responses to opiates in the acute *vs.* the chronic pain state. Further investigation should confirm the racial differences, then characterize the genes that mediate differences in opiate analgesia. A racial-genetic difference in opiate sensitivity has important therapeutic implications.

Due to practical and ethical restraints, racial differences in pain and their genetic source are examined in animal pain models. Intriguing data have been garnered.

Experimental evidence: genetic influence of animal behavior – All rats are not equal

The animal literature has demonstrated generally consistent effects of analgesics on noxious stimuli. However, careful

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comparison between studies reveal significant variability of the baseline pain behaviors as well as the effect of analgesics. Differences persist even after controlling for factors such as stimulus intensity and housing condition. The source of variability has been narrowed to the use of various strains or substrains of rodent. Indeed, strain differences have been observed in behaviors, including learning and memory, mother-infant interaction and anxiety (Ts'o, 1975; Ammassari-Teule, 1993; Trullas and Skolnick, 1993; Moore, 1997). Research has also uncovered strain differences in drug seeking behavior in rats. Lewis rats appear more sensitive to the addictive effect of cocaine compared to Fischer rats. The pharmacokinetics of cocaine in these rats are similar, so the increased responsiveness to cocaine in the Lewis rats may be due to an increased sensitivity or activity of the brain's reward center activated by cocaine (Kosten, 1997). The differences in behavior observed in rodents may be due to a difference in brain function, which point to genetic differences (Bentivoglio et al., 1994; Symons et al., 1988). Since rodents in many studies were raised under similar conditions, the influence of environment is likely to be minimal. The strain differences in behavior are not only of considerable experimental importance, but also have implications for racial behavioral differences.

Recently, a study was performed that minimized environmental variability and evaluated various pain behaviors of 11 strains of mice (Mogil et al., 1998, 1999a). In general, some mice strains were more sensitive to noxious heat than others, whereas other strains had high heat tolerance. Mogil et al. then used several kinds of noxious heat tests (e.g. testing responsiveness of the tail or paw). An interesting finding was that the responses of the mice varied when assessed with the various noxious tests. The correlation between different tests (e.g. chemical *vs.* thermal pain) was low, whereas the correlation between two similar tests that utilized noxious heat was about 0.9 (Mogil et al., 1999b). It should not be too surprising that responses may differ occur depending on the test used. However, the correlations, when presented on a

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multidimensional scaling plot, formed a cluster, in that tests that utilized heat formed a cluster (and correlations from other tests such as chemically-induced pain, were another cluster). Thus, it may be speculated that the genes of the heat sensitive mice may differ from those that are heat tolerant. Also, tests of different sensory modalities may be activating different pathways. Future studies will attempt to identify the genes underlying the differential responsiveness to painful stimuli using molecular biological techniques.

In addition to the differential sensitivity to noxious stimuli, rodents are differentially sensitive to the analgesic effect of opiates. Studies have demonstrated varying effects of opiates between rodent strains (Sudakov, 1996; Mogil, 1996). Mogil et al. (1996) found significant differences, of opiate efficacy and potency, in several mouse strains. Differences persisted across various pain tests. Interestingly, an inverse correlation was demonstrated between sensitivity to a noxious stimulus and analgesic efficacy of morphine. In other words, the dose response curve of mice highly sensitive to a noxious stimulus was to the right of those mice which were more tolerant to the same stimulus (Mogil et al., 1996; Elmer et al., 1998). One source of the differences in the responses to analgesics is a differential functioning of endogenous analgesic system, which is usually activated in times of stress and external stimuli. In animals, the analgesic system is comprised of inhibitory ligands and receptors, which are found in areas of the brain that are involved in pain perception. Differences in brain opiate pharmacology, such as receptor numbers and peptide levels, have been observed between strains of mice (Frishchknecht et al., 1988; Shuster, 1989; Mogil et al., 1996; Mogil et al., 1997; Winkler and Spanagel, 1998). Some of the data suggest that a positive correlation between opiate receptor number and analgesic effect of morphine, but this needs to be further tested. Also, the relevance of other receptors and transmitters to behavior needs to be established.

The rodent studies suggest at least two clinical implications for humans, that the races may differ in pain sensitivity and in

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responsiveness to analgesics and that these differences are genetically mediated. The data above tend to support the clinical findings, where blacks seem to be more sensitive to acute painful stimuli and are less sensitive to opiate analgesics compared to Asians (in America), and Asians have higher pain tolerance and are more sensitive to opiates. More observations, under pain states due to disease or post-operative pain and the effect of various types of analgesics, are needed to confirm racial differences in pain perception and analgesic efficacy.

Evolutionary strategy?

Organisms have evolved various "life histories," strategies to ensure the perpetuation of their kind. The strategies can be characterized as either *r* or K. High *r*-strategies include high rate of reproduction, low investment on offspring upbringing and rapid maturation. In contrast, high K strategies include low rate of reproduction and high investment in offspring upbringing and slow maturation. The races markedly differ in reproductive strategies, that is, Asians are more K-selective than whites. Blacks are more *r*-selective than whites and Asians. Rushton (1995) has suggested that the racial differences in behavior, particularly intelligence, are a consequence of the racial difference in evolutionary strategy. The racial difference in pain perception may also be explained by *r*-K strategy. Although speculative, the high pain tolerance of Asians and whites is a result of early life in northern Asian and Europe. Traits such as long-range goal setting and patience were highly favorable for those who lived in the harsh climates. High pain tolerance, in combination with such behaviors as self-discipline, may have also been an essential survival trait for this region. However, in the more temperate African climates, life was not so formidable, encouraging less rigorous behavior than those of northern Eurasia. Thus, the ability to withstand pain was not important for people in Africa. Furthermore, enduring pain may hinder self-gratification and multiple sexual encounters. So, rather than withstand pain, pain was something to be actively avoided. High pain tolerance would be K-selective and low pain tolerance would be *r*-selective. Additional investigation of pain

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perception in early humans should shed light on its evolutionary and genetic significance.

Consequences of differential responsiveness to pain

Pharmacologic and physiologic variability observed between strains of mice suggest that genes mediate these differences. The animal data raise the possibility that racial differences in human pain perception are also, in part, genetically mediated. Testing of this hypothesis should start with collection and evaluation of human pain behavior. In parallel with describing racial differences in pain behavior, characterization of the human pain neurochemistry should be pursued. This would include assessment of brain receptor number and function and neurotransmitter type and levels in brain regions involved in pain modulation. Non-invasive imaging technology will enable the collection of anatomical and functional data.

Genetic analysis has been applied to animals in examining the genetics of pain. As previously mentioned, Mogil et al. (1999a) have uncovered strain differences in pain perception, which suggests genetic mediation. Mogil et al. (1997) are currently trying to identify pain-related genes. In another study, rats were selectively breed to show either a high or low degree of self-directed injury behavior (autotomy) following peripheral nerve transection. Crossing of the homozygous high and low autotomy rats yielded hybrids that displayed low autotomy following nerve injury, which demonstrates, the author suggested, that autotomy is a recessive trait. Backcrossing the hybrids to the high autotomy resulted in 50% high autotomy and 50% low autotomy rats. The authors concluded that the pain behavior following nerve injury was mediated by a single-gene autosomal recessive trait (Devor and Raber, 1990). Thus, the combination of genetic and behavioral analysis is a powerful technique in elucidating the role of genes in pain behavior.

In a similar manner, it should be possible to use genetic analysis to identify the genes involved in human pain behavior. This knowledge may enable us to diagnose people who are at risk of developing chronic pain that accompanies disease or injury. The differential responsiveness of pain to analgesics may

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occur in several ways, such as activation of a racially unique gene following injury or alteration that occurs only in some races of a gene found in all races (e.g. splice variant). For example, there is significant polymorphism of the preproenkephalin A gene in Asians, blacks and whites (Chan et al., 1994). A higher frequency of the preproenkephalin A gene have been reported in heroin addicts, compared to non-narcotic addicts and non-addicts (Comings et al., 1999). The gene product enkephalin is involved in modulating pain and other behaviors, but the functional consequences of changes in the enkephalin gene in humans are unknown. Comparison of the enkephalin gene and levels of enkephalin and correlating these with behaviors, such as pain sensitivity and sensitivity to opiate analgesics, should shed some insight in the function of the gene in behavior and the consequence of alterations of the gene on behavior.

The search for human genes and gene products that are related to pain behavior has already yielded results, but their significance in pain behavior is unclear. A report has noted that patients who suffer from reflex sympathetic dystrophy (RSD), a particularly debilitating pain state that persists long after injury has resolved, have high levels of DR2(15) major histocompatibility complex antigen (Mailis and Wade, 1994). A survey completed by the Reflex Sympathetic Dystrophy Association points to white females of Northern European descent are more prone to suffer RSD, compared to blacks and Asians (Mailis and Wade, 1994). The increase of an immunologically-related marker is similar to that observed in patients with multiple sclerosis, which raises the intriguing possibility that a chronic pain state such as RSD involves neuro-autoimmune dysfunction (Mailis and Wade, 1994). However, the exact role of DR2(15) in chronic pain and its increased expression in white RSD patients remains to be elucidated. Treatment for RSD is not uniformly successful across patients. Phentolamine, an α-adrenergic receptor antagonist, has shown mixed results when used to diagnose and treat RSD. The variable effect of phentolamine may be due to differences in adrenergic receptor function in RSD patients. Lee et al. (1997)

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demonstrate that some rat strains with an RSD-like pain state will respond to phentolamine whereas other strains do not. This suggests that race may have a role in the variability of phentolamine's effect. Comparison of human adrenergic receptor function and genes between races may yield insight into the source of phentolamine's variable effect.

As is the case for many types of human behavior, there are individual and group differences in behavior and these variabilities may be due to genetic differences. Genetic differences may also underlie variability in pain perception. It is likely that numerous genes will be identified that are involved in pain behavior. Uncovering these genes and relating them to a role in normal pain perception and the chronic pain state will further our understanding of the mechanism of pain. Identification of pain-related genes may also have a significant impact on developing novel treatment for pain.

REFERENCES

Albers, L.
1998 Midwifery management of pain in labor: The CNM data group. J. *Nurse-Midwifery* 43: 77-82

Ammassari-Teule, M., Hoffmann, H.J., Rossi-Arnaud, C.
1993 Learning in inbred mice: strain-specific abilities across three radial maze problems. *Behav. Gen.* 23: 405-412.

Baker, J.R.
1974 Race. Oxford University Press: London.

Bentivoglio, A.R., Altavista, M.C., Granata, R., Albanese, A.
1994 Genetically determined cholinergic deficiency in the forebrain of C57BL/B mice. *Brain Res.* 637: 181-189.

Bonica, J.J.
1990 The Management of Pain. Lea and Fibiger: Malvern, PA

Chan, R.J., McBride, A.W., Thomasson, H.R., Ykenney, A., Crabb, D.W.
1994 Allele frequencies of the preproenkephalin A (PENK) gene CA repeat in Asians, African –Americans, and Caucasians: lack of evidence for different allele frequencies in alcoholics. *Alcohol Clin. Exp. Res.* 18: 533-535.

Chapman, C.R., Sato, T., Martin, R.W., Tanaka, A., Okazaki, N., Colpitts, Y.M., Mayeno, J.K., Gagliardi, G.J.
1982 Comparative effects of acupuncture in Japan and the United States on dental pain perception. *Pain* 12:319-28.

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Chen, A.C.N., Dworkin, S.F., Haug, J., Gehrig, J.
1989 Human pain responsivity in a tonic pain model: psychological determinants. *Pain* 37: 143-160.
Comings, D.E., Blake, H., Dietz, G., Gade-Andarolu, R., Legro, R.S., Saucier, G., Johnson, P., Verde, R., MacMurray, J.P.
1999 The proenkephalin gene (PENK) and opioid dependence. *NeuroReport* 10: 1133-1135.
Devor, M., Raber, P.
1990 Heritability of symptoms in an experimental model of neuropathic pain. *Pain* 42:51-67.
Edwards, R.R., Fillingim, R.B.
1998 Racial differences in thermal pain responses. *Amer. Pain Soc. Abstr.* 17: 156.
Elmer, G.I., Pieper, J.O., Negus, S.S. and Woods, J.H.
1998 Genetic variance in nociception and its relationship to the potency of morphine-induced analgesia in thermal and chemical tests. *Pain* 75: 129-140.
Frischknecht, H.R., Siegfried, B. and Waser, P.G.
1988 Opioids and behavior: genetic aspects. *Experimentia* 44: 473-481.
Garron, D.C., Leavitt, F.
1979 Demographic and affective covariates of pain. *Psychosom. Res.* 41: 525-534.
Greenblum, J.
1974 Medical and health orientations of American Jews: a case of diminishing distinctiveness. *Soc. Sci. Med.* 8:127-34.
Houghton, I.T., Aun, C.S.T., Lau, J.T.F.
1992 Inter-ethnic differences in postoperative pethidine requirements. *Anaesth. Intes. Care* 20: 52-55.
Kaiko, R.F., Wallenstein, S.L., Rogers, A.G., Houde, R.W.
1983 Sources of variation in analgesic responses in cancer patients with chronic pain receiving morphine. *Pain* 5:191-200.
Knox, V.J., Shum, K., McLaughlin, D.H.
1977 Response to cold pressor pain and to acupuncture analgesia in oriental and occidental subjects. *Pain* 4: 49-57.
Kosten, T.A., Miserendino, M.J., Haile, C.N., DeCaprio, J.L., Jatlow, P.I., Nestler, E.J.
1997 Acquisition and maintenance of intravenous cocaine self-administration in Lewis and Fischer inbred rat strains. *Brain Res.* 778: 418-429.
Lee, D.H., Chung, K., Chung, J.M.
1997 Strain differences in adrenergic sensitivity of neuropathic pain behaviors in an experimental rat model. *NeuroReport* 8: 3453-3456.

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Mardy, S., Miura, Y., Endo, F., Matsuda, I., Sztriha, L., Frossard, P., Moosa, A., Ismail, E.A., Macaya, A., Andria, G., Toscano, E., Gibson, W., Graham, G.E., Indo, Y.
1999 Congenital insensitivity to pain with anhidrosis: novel mutations in the TRKA (NTRK1) gene encoding a high-affinity receptor for nerve growth factor. *Am. J. Hum. Genet.* 64:1570-1579.

Mailis A., Wade J.
1994 Profile of Caucasian women with possible genetic predisposition to reflex sympathetic dystrophy: a pilot study. *Clin. J. Pain* 10: 210-217.

Martin, B.C., Dorfman, J.H., McMillan, J.A., McMillan, C.A.
1994 Prevalence of migraine headache and association with sex, age, race, and rural/urban residence: a population-based study of Georgia Medicaid recipients. *Clin. Therap.* 16: 855-872.

Melzack, R., Wall, P.D.
1982 The Challenge of Pain. Basic Books: New York.

Mogil, J.S., Sternberg, W.F., Marek, P., Sadowski, B., Belknap, J.K., Liebeskind, J.C.
1996 The genetics of pain and pain inhibition. *Proc. Natl. Acad. Sci. USA.* 93: 3048-3055.

Mogil, J.S., Richards, S.P., O'Toole, L.A., Helms, M.L., Mitchell, S.R., Belknap, J.K.
1997 Genetic sensitivity to hot-plate nociception in DBA/2J and C7BL/6J inbred mouse strains: possible sex-specific meidation by delta2-opiate receptors. *Pain* 70: 267-277.

Mogil, J.S., Lichtensteiger, C.A. and Wilson, S.G.
1998 The effect of genotype on sensitivity to inflammatory nociception: characterization of resistance (A/J) and sensitive (C57BL/6J) inbred mouse strains. *Pain* 76:115-125.

Mogil, J.S., Wilson, S.G., Bon, K., Lee, S.E., Chung, K., Raber, P., Pieper, J.O., Hain, H.S., Belknap, J.K., Hubert, L., Elmer, G.I., Chung, J.M. and Devor, M.
1999 aHeritability of nociception I: responses of 11 inbred mouse strains on 12 measures of nociception. *Pain* 80:67-82.

Mogil, J.S., Wilson, S.G., Bon, K., Lee, S.E., Chung, K., Raber, P., Pieper, J.O., Hain, H.S., Belknap, J.K., Hubert, L., Elmer, G.I., Chung, J.M., Devor, M.
1999 bHeritability of nociception II. 'Types' of nociception revealed by genetic correlation analysis. *Pain* 80:83-93.

Moore, C.L., Wong, L., Daum, M.C., Leclair, O.U.
1997 Mother-infant interactions in two strains of rats: implications for dissociating mechanism and function of a maternal patter. *Dev. Psychobiol.* 30: 301-312.

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National Science Foundation
1994 Women, Minorities, and Persons with Disabilities in Science and Engineering: 1994. National Science Foundation: Arlington, VA.

Ng, B., Dismdale, J.E., Rollnik, J.D., Shapiro, H.
1996 The effect of ethnicity on prescriptions for patient-controlled analgesia for post-operative pain. *Pain* 66: 9-12.

Rushton, J.P.
Race Evolution and Behavior. Transaction Press: New Brunswick, NJ.

Schwartz, B.S., Stewart, W.F., Simon, D., Lipton, R.B.
1998 Epidemiology of tension-type headache. *J. Amer. Med. Assn.* 279: 381-383.

Shuster, L.
1989 Pharmacogenetics of drugs of abuse. *Ann. N.Y. Acad. Sci.* 562:56-73.

Streltzer, J., Wade, T.C.
1981 The influence of cultural group on the undertreatment of postoperative pain. *Psychosom. Med.* 43:397-403.

Sudakov, S.K., Borisova, E.V. and Lyupina, Y.V.
1996 Influence of inheritance and fostering on sensitivity to effects of morphine on nociception and locomotor activity in two inbred rat stains. *Neuropharmacol.* 35: 1131-1134.

Symons, J.P., Davis, R.E., Marriott, J.G.
1988 Water-maze learning and effects of cholinergic drugs in mouse strains with high and low hippocampal pyramid cell counts. *Life Sci.* 42: 375-383.

Trullas, R., Skolnick, P.
1993 Differences in fear motivated behaviors among inbred mouse strains. *Psychopharmacol.* 111: 323-331.

Ts'o, T.O., Baker, S.J., Noble, N.A., Brewer, G.J.
Differences in developing the lever-pressing behavior in two strains of rats. *Physiol. Behav.* 14: 719-723.

Wang, S.-W., Fallon, J.T.
1990 A clinicopathologic comparison of acute myocardial infarction in the elderly Chinese and American. *Chinese Med. J.* 103: 110-116.

Weisenberg, M., Kreindler, M.L., Schachat, R, Werboff, J.
1975 Pain: anxiety and attitudes in black, white and Puerto Rican patient. *Psychosomatic Med.* 37: 123-135.

Winkler, A., Spanagel, R.
1998 Differences in the kappa opioid receptor mRNA content in distinct brain regions of two inbred mice strains. *NeuroReport* 9: 1450-1464

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Woodrow, K.M., Friedman, G.D., Siegelaub, A.B., Collen, M.F.
1972 Pain tolerance: differences according to age, sex and race. *Psychosomatic Med.* 34: 548-556.
Yanovski, J.A., Yanovski, S.Z., Cutler, G.B., Chrousos G.P., Filmer, K.M.
1996 Differences in the hypothalamic-pituitary-adrenal axis of black girls and white girls. *J. Pediatrics* 29: 130-135.
Zatzick, D.F., Dimsdale, J.E.
1990 Cultural variations in response to painful stimuli. *Psychosomatic Med.* 52: 544-557.
Zhou, H.H., Sheller, J.R., Nu, H., Wood, M., Wood, A.J.
1993 Ethnic differences in response to morphine. *Clin. Pharmacol. Ther.* 54:507-513.
Zborowski, M.
People in Pain. Jossey-Bass: San Francisco.

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